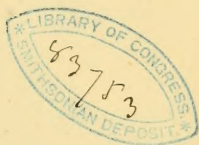




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TRANSACTIONS
OF THE
ENTOMOLOGICAL SOCIETY
OF
LONDON.

THE
TRANSACTIONS
OF THE
ENTOMOLOGICAL SOCIETY
OF
LONDON
FOR THE YEAR
1874.



LONDON:

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ERRATA.

- Page 140, line 20, for "groups" read "group."
 ,, 141, line 14, place "dream" between inverted commas, and for "had," read "has."
 ,, 143, line 26, for "concaved," read "encased."
 ,, 146, line 4, for "Tehitrea," read "Tchitrea."
 ,, 147, last line, dele commas after "broader" and "sub-apical."
 ,, 313, line 14, for "antennatus," read "antennata."
 ,, 331, line 29, dele "and" after "forewings."
 ,, 333, line 14, for "striae," read "stria."
 ,, 333, line 25, for "U," read "H."
 ,, 339, line 26, for "Kockfontein," read "Koekfontein."
 ,, 363, line 10, after "extremity," add "of foreleg."
 ,, 412, line 8, for "Timor, Malacca, Cambodia. Colls. de Mniszech and Parry," read "Fiji Islands. Coll. de Mniszech."
 ,, 465, line 7 (from bottom), for "*Proteus*," read "*Protea*."

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OF LONDON.

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- 1862 Sharp, David, M.B., Eccles, Thornhill, Dumfriesshire.
- 1868 Shearwood, G. P., Cedar Lodge, Stockwell Park, S.W.
- 1847 Shepherd, Edwin, 21, Albert Terrace, Clapham Road, S.W.
- 1851 Sheppard, Augustus F., Rose Bank, Eltham Road, Lee, S.E.
- 1852 Sheppard, Edward, F.L.S., 18, Durham Villas, Kensington, W.
- 1867 Sidebotham, J., 19, George Street, Manchester.
- 1863 Smith, E. A., 27, Richmond Crescent, Islington, N.
- 1850 Smith, Frederick, 27, Richmond Crescent, Islington, N.
- 1869 Smith, Henley, G., Warnford Court, E.C.
- * † Spence, W. B.
- 1848 † Stainton, H. T., F.R.S., F.L.S., &c., Mountsfield, Lewisham, S.E.
- 1862 Stevens, John S., 38, King Street, Covent Garden, W.C.
- 1837 Stevens, Samuel, F.L.S., 28, King Street, Covent Garden, W.C.
- 1866 Swanzy, Andrew, F.L.S., Sevenoaks.
- 1854 S. Thompson, Miss Sophia, Barn Hill, Stamford.
- 1856 Thomson, James, 23, Rue de l'Université, Paris.
- 1838 Thwaites, G. H. K., Ph. D., F.R.S., F.L.S., Ceylon.
- 1853 S. Tompkins, H., 28, Tavistock Square, W.C.
- 1859 † Trimmen, Roland, F.L.S., Colonial Office, Cape Town.
- 1874 Tuely, Nathaniel C., Mortimer Lodge, Wimbledon Park, S.W.
- 1869 Vaughan, Howard, 55, Lincoln's Inn Fields, W.C.
- 1849 Vaughan, P. H., Redland, Bristol.
- 1866 Verrall, G. H., *Secretary*, The Mulberries, Denmark Hill, S.E.
- 1870 Walker, Rev. F. A., M.A., F.L.S., Dry Drayton Rectory, Cambridge.
- 1858 Wallace, Alexander, M.D., Trinity House, Colchester.
- 1863 Wallace, Alfred R., F.L.S., F.Z.S., &c., The Dell, Grays, Essex.

| Date of Election. | | |
|-------------------|----|--|
| 1866 | | Walsingham, Lord, M.A., F.Z.S., &c., 23, Arlington Street, W. |
| 1866 | | Ward, Christopher, F.L.S., Halifax. |
| 1874 | S. | Ward, Alan Ogier, 13, Lower Park Fields, Putney, S.W. |
| 1850 | | Waring, S. L., The Oaks, Norwood, S.E. |
| 1869 | | Waterhouse, C. O., British Museum, W.C. |
| | * | Waterhouse, G. R., F.Z.S., &c., British Museum, W.C. |
| 1869 | | Websdale, C. G., 78, High Street, Barnstaple. |
| 1845 | | Weir, J. Jenner, F.L.S., 6, Haddo Villas, Blackheath, S.E. |
| | * | Westwood, Professor J. O., M.A., F.L.S., &c., Oxford. |
| 1868 | † | White, F. Buchanan, M.D., Perth, N.B. |
| 1865 | | White, Rev. W. Farren, Stonehouse Vicarage, Gloucestershire. |
| 1874 | | Wilson, Owen, Cwmffrwd, Carmarthen. |
| 1863 | | Wix, William, Isbells, Reigate. |
| 1843 | | Wollaston, T. Vernon, M.A., F.L.S., 1, Barnepark Terrace, Teignmouth, Devon. |
| 1874 | | Wood-Mason, James, Curator of the Indian Museum, Calcutta. |
| 1862 | | Wormald, Percy C., 2, Clifton Villas, Highgate Hill, N. |
| 1866 | | Wright, Professor E. Perceval, M.A., M.D., F.L.S., &c., Trinity College, Dublin. |
| 1865 | S. | Young, Morris, Free Museum, Paisley. |

THE
TRANSACTIONS
OF THE
ENTOMOLOGICAL SOCIETY
OF
LONDON
FOR THE YEAR 1874.

I. *The Staphylinidæ of Japan.*

By DAVID SHARP, M.B.

[Read 5th May, 1873.]

THIS paper is another contribution to our knowledge of the Coleoptera of Japan. In it are enumerated the species of Staphylinidæ known to me from these islands, and the 190 species mentioned in it are nearly all of them the results of Mr. Lewis's researches. About 220 species of the family have been submitted to me by Mr. Lewis, as captured by him in Japan; but about thirty of this number I have been obliged to leave for the present unnoticed, as they consist of single specimens of obscure species of *Homalota*, *Trogophlæus*, &c., generally not in sufficiently good condition for description from unique examples.

Though this number of species (220) may appear a considerable one, I have no doubt it is but a small portion of the number of species of Staphylinidæ inhabiting Japan, in proof of which I may mention two facts: first, that out of the three or four species, which are all that have been previously described of this family from Japan, Mr. Lewis has brought back but one—the *Oxytelus japonicus* of Motschoulsky; and second, that out of a dozen species of Staphylinidæ which I have myself received, through other

channels, from Japan, nearly all are specifically distinct from any found by Mr. Lewis.

The indications of locality and habits are furnished by Mr. Lewis himself; and, besides this, I have to thank him greatly for the kind way in which he has answered my questions, and done everything in his power to facilitate my work.

1. *Falagria simplex*, n. sp. Affinis *F. subrugosæ*, Kraatz. Testaceo-brunnea, capite abdomineque (basi excepto) fuscis, antennarum basi pedibusque testaceis; prothorace subcordato, profunde canaliculato, elytris circa scutellum creberrime distinctius punctatis, apicem versus vix punctulatis, abdomine sat crebre punctato. Long. $1-1\frac{1}{4}$ lin.

About the size and form of *F. sulcata*, lighter in colour than that species, from which it is readily distinguished by its punctured but not channelled scutellum. Antennæ yellow at the base, darker towards the extremity; joints 4—6 quadrate, 7—10 rather broader than long. Head blackish, scarcely punctured. Thorax similar in form and in its channel to *F. sulcata*, of a castaneous colour. Elytra yellowish, closely and distinctly punctured on each side of the scutellum, elsewhere but little punctured; the punctured part being a little darker; they are quadrate, much broader and a little longer than the thorax. The two basal segments of the hind body are yellowish, the rest infuscate; the two basal segments are transversely depressed at the base, where they are rugose-punctate; the other segments are distinctly but not closely punctured. The legs are pale yellow.

Hiogo: three specimens.

2. *Falagria sapida*, n. sp. Fusca, opaca, elytris cum antennis pedibusque testaceis, his plus minusve infuscatis; dense obsoletissimeque punctulata, antennis pedibusque elongatis. Long. $1\frac{2}{3}$ lin.

Mas, prothorace disco concavo.

Femina, prothorace medio canaliculato.

Antennæ elongate, yellow at the base, infuscate towards the extremity, all the joints longer than broad. Head and thorax opaque, but scarcely visibly punctured, of a smoky or pitchy colour. Scutellum not channelled. Elytra pale yellow, about as long as the thorax, a little impressed

behind the scutellum, not shining, scarcely visibly punctured. Hind body pitchy, densely and finely punctured. Legs very long (the hind tarsi remarkably elongate and slender); they are yellowish in colour, with the femora more or less infuscate.

Found in heaps of rubbish at Nagasaki.

3. *Falagria fovea*, n. sp. Capite thoraceque rufis, elytris fuscis, basi apiceque anguste testaceis, abdomine nigro, segmentis basalibus testaceis, antennis pedibusque testaceis, illis medio obscurioribus, femoribus quatuor posticis fuscis, basi testaceis; thorace subcordato profunde canaliculato, vix punctulato; elytris pone scutellum foveolatis. Long. fere $1\frac{1}{2}$ lin.

Antennæ rather long, reddish-yellow, joints 4—10 darker than the others; the 10th joint nearly as long as broad. Head and thorax scarcely punctured, reddish in colour; the thorax deeply channelled throughout its whole length. Elytra rather broad and short, about as long as the thorax, dusky yellowish or pitchy, with the humeral angle and apex paler, scarcely punctured, but with a distinct impression behind the scutellum. The scutellum is nearly simple, but is furnished with an almost invisible, fine line along the middle. The hind body is black, with the two basal segments yellow, sparingly and very finely punctured. The legs are long and slender, yellow, with the hind femora infuscate except at the base.

This pretty species is evidently allied to *F. flavo-cincta*, Kr. (from Ceylon).

SANTHOTA, nov. gen.

Caput collo distincto.

Coxis intermediis distantibus.

Tarsi antici 4-, intermedii et posteriores 5-articulati, posteriores articulo primo sat elongato, sequentibus longitudine gradatim decrescentibus.

Lobes of the maxillæ long, the interior lobe densely pubescent on its inner side, the pubescence long; exterior lobe very densely pubescent at the extremity; 3rd joint of maxillary palpi distinctly longer than 2nd, and a little dilated, 4th joint minute and subulate. Ligula rather short and broad, divided at the extremity. Labial palpi with the three joints differing little from one another in length, but each considerably more slender than the preceding one.

Side piece of the thorax narrow and a little inflexed. Middle portion of the mesosternum not separated from the side portions, without carina along the middle. Middle coxæ widely separated, the mesosternum but little produced between them, the produced portions of meta- and meso-sterna between the coxæ not reaching one another. Hind tarsi much shorter than the tibiæ, the basal joint about as long as the fifth.

This genus should I think be placed between *Falagria* and *Bolitochara*; it differs from the former by the structure of the mesosternum, and from the latter by the broadly separated middle coxæ. In some respects it approaches *Astilbus*, but differs therefrom by the short articulating collar of the mesosternum.

4. *Santhota sparsa*, n. sp. Rufo-testacea sat nitida, abdomine segmentis 4—6 nigricantibus; thorace cordato, fortiter sat crebre punctato, medio profunde canaliculato, elytris crebre fortiter rugose punctatis, punctis versus angulum externum desinentibus; abdomine supra lævigato. Long. $1\frac{2}{3}$ lin.

Mas, prothorace disco depresso; abdomine segmento ultimo dorsali sat evidenter asperato.

Antennæ rather long and stout, reddish, 3rd joint longer than 2nd, 4th and 5th a little longer than broad, 7—10 transverse, 11th rather large, as long as the two preceding together. Head about as broad as the thorax, scarcely punctured, the eyes rather large and prominent. Thorax much narrower than the elytra, about as long as broad, a little narrowed behind, moderately closely punctured, the punctures consisting of fine granulations; it is deeply channelled down the middle. Elytra rather short, about as long as the thorax, coarsely and roughly punctured, the punctuation very dense at the base, almost absent at the extremity. Hind body almost impunctate on the upper surface, finely and sparingly punctured beneath.

5. *Ocalea japonica*, n. sp. Nigra, nitida, antennarum basi, palpis, pedibusque testaceis, elytris castaneis, externe infuscatis; prothorace subquadrato, elytris fortiter punctatis, abdomine supra lævigato. Long. $2\frac{1}{2}$ lin.

Allied to *O. castanea* but larger, with the thorax more quadrate, the elytra more strongly punctured, &c. Antennæ stout, moderately long, the fourth joint about as

long as broad, the penultimate joints distinctly broader than long. Head much narrower than the thorax, distinctly but not closely punctured. Thorax narrower than the elytra, distinctly broader than long, a little narrowed behind, much less depressed and rounded at the front angles than in *O. castanea*; it is distinctly punctured, but has no well-defined fovea at the base. The elytra are longer than the thorax, of a brownish colour, darker at the sides (except at the shoulder), rather coarsely punctured. The hind body is shining, and has scarcely any traces of punctuation.

Three specimens under dead leaves. Copper Temple, Nagasaki.

6. *Thiasophila rufescens*, n. sp. Rufo-ferruginea, subopaca, abdomine medio plus minusve infuscato; prothorace transverso, elytrorum latitudine, angulis anterioribus omnino rotundatis, posterioribus rectis. Long. $1\frac{1}{3}$ lin.

Allied to *inquilina*, and about the size of that species; joints 5—7 of the antennæ rather less transverse, the thorax rather longer and narrower, and the punctuation rather finer. The smaller size, and different antennæ, at once distinguish it from *T. angulata*. The colour is rather variable, the head, the middle of the antennæ, and hind body (except at the apex) being sometimes pitchy-red, sometimes scarcely darker than the other parts. The antennæ are short and stout, greatly thickened towards the extremity, the penultimate joints very strongly transverse. The thorax is about as wide as the elytra, the front angles very rounded; the sides about straight from near the front angles to the hind angles. The elytra are distinctly longer than the thorax, closely and finely punctured. The hind body is finely and rather closely punctured, the extremity always paler than the other parts.

Three specimens appear to belong to a well-marked variety, being larger and broader, and darker-coloured than the darkest individuals of *rufescens*. It is possible that the examination of a larger series of specimens might show them to belong to a distinct species. Found with *Formica japonica*.

7. *Homœusa japonica*, n. sp. Picea, nitida, antennis pedibusque rufescentibus, ano testaceo; thorace latissimo; elytris angulo apicali externo fortiter productis. Long. $1\frac{1}{4}$ — $1\frac{1}{2}$ lin.

Closely allied to *H. acuminata*; in form and punctuation very similar to that species, but differing as follows; *H. japonica* is rather larger, and of a darker colour; it has the antennæ a little stouter, the thorax distinctly broader, and the external angle of the elytra more produced.

From Nagasaki. I have seen only three specimens.

8. *Microglotta princeps*, n. sp. Nigra, antennis fusco-rufis, basi pedibusque rufis, elytris sutura, apice summo, humerisque rufescentibus; capite prothoraceque fortiter profunde punctatis. Long. $2\frac{1}{4}$ lin.

Rather larger than *M. gentilis*, but quite different from that species in punctuation, in which respect it resembles *M. pulla*. The antennæ are long (for this genus), obscure, reddish, or pitchy red, yellowish at the base, 3rd joint rather longer than 2nd; 8th joint slightly, 9 and 10 distinctly, broader than long; 11th elongate and pointed, longer than the two preceding together. Palpi and mouth reddish; head very strongly punctured, clothed like the thorax and elytra with a distinct yellow pubescence. Thorax narrower than the elytra, strongly transverse, the hind angles rather obtuse but not rounded, coarsely and closely punctured, with an ill-defined fovea at the base in the middle. Elytra considerably longer than the thorax, the humeral angle largely, the hind margin narrowly, and the suture (except at the base) distinctly red, the rest blackish; they are strongly and closely punctured, but not so coarsely as the thorax. The hind body is black, with the hind margins of the segments reddish; it is closely and distinctly punctured, and more shining than the front parts. The legs are reddish, the basal joint of the hind tarsi much longer than the three following together.

Three specimens.

9. *Aleochara parens*, n. sp. Nigra, antennis brevibus, fusiformibus, basi pedibusque sordide rufis; thorace crebre minus fortiter, abdomine fortiter minus crebre punctato, hoc apicem versus angustato. Long. 3— $3\frac{1}{2}$ lin.

Allied to *A. lata*, but narrower, with the thorax and elytra more closely and finely punctured, and by this same character also distinguished from the *A. claviger*, and *discoidea*. Antennæ stout, black, with the two basal joints pitchy red, thicker in the middle than at the ex-

tremity, joints 5—10 strongly transverse. Palpi pitchy. Head scarcely half as broad as the thorax, sparingly and not coarsely punctured. Thorax transverse, rounded at the sides and base, and narrowed in front, black, rather closely and finely punctured. Elytra shorter than the thorax, rather closely and finely but distinctly punctured. Hind body moderately narrowed towards the extremity, coarsely but not closely punctured. Legs pitchy red.

10. *Aleochara discoidea*, n. sp. Nigra, antennis brevibus, fusiformibus, basi pedibus, elytrisque disco rufis; abdomine apicem versus angustato, fortiter minus crebre punctato. Long. $3\frac{1}{2}$ lin.

Allied to *A. fuscipes*, but differing from it by the coarser punctuation of the thorax and elytra: also closely allied to *A. claviger*, but rather smaller, and, besides the difference in the colouring of the elytra, has the hind body more sparingly punctured. Antennæ short and stout, thicker in the middle than at the extremity, the two first joints dark red, 3rd joint longer than 2nd, 5—10 strongly transverse. Head small, not half so broad as the thorax, sparingly but distinctly punctured; the palpi red. Thorax strongly transverse, rounded at the sides and narrowed in front, shining black, rather coarsely and sparingly punctured. Elytra much shorter than the thorax, black at the sides and the base, red in the middle, rather coarsely and moderately closely punctured. Hind body narrowed towards the extremity, shining black, coarsely and sparingly punctured, the punctuation not at all closer at the base than at the extremity of each segment. Legs red, the femora on the under side as well as the anterior coxæ infusate.

Four specimens.

11. *Aleochara claviger*, n. sp. Nigra, antennis brevibus, fusiformibus, basi pedibusque rufis; capite, thorace, elytrisque crebre fortiter punctatis, abdomine apicem versus angustato, crebre fortiterque punctato. Long. $3\frac{1}{2}$ —4 lin.

Allied to *A. fuscipes*, with the anterior parts of the body much more strongly punctured and the elytra differently coloured. Antennæ short and stout, a little thicker in the middle than at the extremity, fuscous, the three basal joints yellow, and the fourth dusky yellow, 3rd joint longer

than 2nd, 4—10 strongly transverse. Head strongly but not closely punctured. Thorax transverse, a little narrowed in front, strongly and rather closely punctured, its form very similar to that of *fuscipes*. Elytra not so long as the thorax, closely and strongly punctured, blackish, obscurely reddish at the extremity, the outer angles rounded. Hind body a little narrowed towards the extremity, rather strongly and moderately closely punctured, (the punctuation is closer and deeper but not coarser than in *fuscipes*). The legs are red, the hind tarsi long and slender, with the basal joint distinctly longer than the two following.

Three specimens.

12. *Aleochara japonica*, n. sp. Nigra, antennarum basi, pedibusque testaceis, elytris apice rufis; capite, thorace, elytrisque dense subtiliter punctatis; abdomine apicem versus attenuato, fortiter minus crebre punctato, segmento penultimo apice emarginato. Long. $2\frac{1}{2}$ — $3\frac{1}{2}$ lin.

Allied to *A. bipunctata*, but with the hind body more strongly and much less densely punctured. Antennæ blackish, the base yellow, and the apical joint also a little paler, 2nd and 3rd joints subequal, joints 4 and 5 each about as long as broad, the penultimate joints transverse, but not strongly so. Head finely and moderately closely punctured. Thorax convex, transverse, finely and closely punctured, and with a rather dense depressed pubescence, the part of the front margin behind the head faintly reddish. Elytra shorter than the thorax, closely and rather finely punctured, their apical part reddish, and the humeral angle indistinctly paler, the outer angle rounded. Hind body distinctly narrowed towards the extremity, strongly but not densely punctured; on each segment the punctuation at the base is closer than at the extremity. The apical segment distinctly emarginate, the sides of the emargination a little crenulate in some specimens, probably the ♂. The legs are reddish, the basal joint of the hind tarsi about as long as the three following together.

I have specimens from Hong Kong, which are either a variety, or a very closely allied species; they have the antennæ rather shorter and paler, the margins of the thorax reddish, and the red marks of the elytra more distinct and of greater extent. I consider them a variety of *A. japonica*.

13. *Aleochara puberula*, Klug. This species seems to have a very wide range in the Eastern hemisphere. In addition to Japan and the localities previously recorded (Pyrenees, Egypt, Madagascar, Canary Isles, and Ceylon), I may mention that I have a specimen from the Paroo Riv. Australia.

14. *Aleochara præsul*, n. sp. Nigra, nitida, pedibus piceis, elytris fusco-nigris, thoracis longitudine; abdomine apicem versus leviter attenuato, fortius sat crebre punctato. Long. $2\frac{1}{3}$ lin. (abdomine extenso).

Closely allied to *A. brevipennis*, but smaller and narrower, and with the hind body more finely and more closely punctured. The antennæ are rather short, black with the basal joint indistinctly paler, joints 5—10 each a little shorter than its predecessor, 5th scarcely, 10th distinctly, transverse; thorax black and shining, very transverse, moderately closely and finely punctured. Elytra about as long as the thorax, pitchy or pitchy black, rather closely and strongly rugulose-punctate, their pubescence very distinct. Hind body black and shining, slightly pubescent, each segment at its basal part closely, and rather strongly punctured, at its hinder part (especially on the apical segments) more sparingly punctured. Legs pitchy red, tarsi reddish.

Three specimens.

I have also a specimen of this species from Lake Baikal in Siberia.

15. *Aleochara peregrina*, n. sp. Nigra, sat nitida, antennarum basi, pedibusque picco-rufis; elytris piceis; abdomine apicem versus minus attenuato, parce subtiliter punctato. Long. abdomine extenso $2\frac{1}{4}$ lin.

Closely allied to *A. mæsta*, in form and size similar to that species and differing from it only as follows: the head and thorax are more finely punctured, the elytra are paler in colour and more closely punctured, the hind body though sparingly and finely punctured has the punctuation more evident than in *mæsta*.

16. *Aleochara fucicola*, n. sp. Atra, subdepressa, pube griscâ parcius vestitâ, capite, thorace elytrisq. opacis, fortiter punctatis; abdomine subnitido, minus crebre punctato; pedibus rufescentibus. Long. $1\frac{2}{3}$ — $2\frac{1}{2}$ lin.

Closely allied to our European species, *obs curella*, *grisea*, and *algarum*, but readily distinguished from them by the short basal joint of the posterior tarsi. In size and appearance it greatly resembles a true *obs curella*, but it has the antennæ longer, the anterior parts of the body much more strongly punctured, with less distinct pubescence, and therefore less opaque, and the hind body more sparingly punctured. It is really more allied to *A. algarum*, but its smaller size, stronger punctuation, and less opaque upper surface, readily distinguish it from that species.

The male is only to be distinguished from the female by the ventral plate of the penultimate segment of the hind body; this is just a little more produced and pointed in the middle in the male than it is in the female.

Under seaweed at Amakusa and Iwosima, near Nagasaki.

17. *Myrmedonia comes*, n. sp. (affinis *M. funestæ*). Nigro-fusca, nitida, antennis pedibusque rufis; prothorace subquadrato, basin versus leviter angustato, parce punctulato, angulis posterioribus minus rotundatis; elytris prothoracis longitudine sat crebre punctatis; abdomine supra lævigato. Long. $2\frac{1}{2}$ — $2\frac{3}{4}$ lin.

Mas, a feminâ vix distinguendus.

This species is closely allied to our European *M. funesta*; it greatly resembles it in colour and in the structure of its antennæ. It is however a little more slender, the thorax and elytra are less closely punctured, its prothorax is longer in proportion to its width, more distinctly narrowed behind, and has its hinder angles less obtuse than *funesta*.

This species, as well as the *M. socius*, is found in the nests of *Formica japonica*, a tree ant allied to the European *F. pubescens*.

18. *M. cognata*, Märk. var.? A single specimen only; about whose sex I am in doubt, and cannot decide whether it be sufficiently distinct from *cognata*.

19. *Myrmedonia socius*, n. sp. (affinis *M. funestæ*). Nigro-fusca, antennis pedibusque rufis, elytris fuscis; prothorace parce punctato, transversim subquadrato, utrinque versus latus oblique impresso; elytris prothoracis longi-

tudine, fortiter sat crebre punctatis, abdomine supra fere lævigato. Long. $2\frac{1}{3}$ lin.

Mas, abdominis segmento 7° ventrali leviter producto.

This species is allied to *M. comes*. It is rather smaller, and has the antennæ less elongate, the thorax more transverse, and the elytra more coarsely punctured. Of our European species it is most allied to *M. funesta*, but the punctuation of its elytra is very different. The under-side of the hind body is rather closely and distinctly punctured.

20. *Ilyobates pictus*, n. sp. Rufo-testaceus, nitidus, capite, elytris, pectore, abdomineque ante apicem nigris; capite, thorace, elytrisque parce punctatis, abdomine fere lævigato. Long. $1\frac{2}{3}$ lin.

This pretty species is very distinct from any other I know, but perhaps is best placed near *I. forticornis*. The antennæ are very stout, yellowish, the apical half paler than the basal portion, 3rd joint stout, but little longer than 2nd, 4th-10th strongly transverse, 11th joint stout, rather short, rounded at the extremity. The head is black and shining, narrower than the thorax, very sparingly but distinctly punctured, a broad space along the middle smooth. Thorax distinctly narrower than the elytra, quadrate, shining red, sparingly but rather strongly punctured, with a well-defined deep fovea at the base in the middle, and in front of this an impunctate middle space. Elytra black, not longer than the thorax, very strongly and sparingly punctured. Hind body almost impunctate, shining red, the two penultimate segments blackish. Legs yellow: basal joint of hind tarsi rather longer than the two following together.

Three specimens. Orakami Marsh, Nagasaki.

Obs.—I have not been able to see distinctly the number of joints in the front tarsus of this species.

21. *Tachyusa rufescens*, n. sp. (affinis *T. uvida*). Rufo-castanea, abdomine apicem versus nigro-fusco; capite, prothorace (sub-orbiculato), elytrisque dense evidententer punctatis, fronte impressâ, thorace basin versus angustato, elytris multo angustiore, abdomine minus crebre punctato, segmentis 2—5 basi fortiter transversim impressis. Long. $1\frac{1}{4}$ — $1\frac{1}{2}$ lin.

Allied, by the form of the head and the structure of the tarsi, to our *T. uvida*, but it is rather smaller.

Antennæ reddish, fourth joint longer than broad, tenth scarcely so long as broad. Head reddish, as broad as the thorax, truncate behind, closely and distinctly punctured, impressed in front. Thorax much narrower than the elytra, rather broader than long, foveolated at the middle in front of the base, and with a fine central channel variable in distinctness, its sculpture similar to that of the head. Elytra distinctly longer than the thorax, rather shining reddish; they are rather coarsely and closely punctured, the suture a little impressed behind the scutellum. Segments 2-5 of the hind body are strongly impressed at the base, the 5th less so than the others; the impressions rugose, elsewhere finely but not closely punctured, but distinctly pubescent. The legs reddish.

Seaweed.

22. *Tachyusa algarum*, n. sp. Rufescens, abdomine apicem versus obscuriore; capite, prothorace elytrisque dense, abdomine parce, punctatis; antennis articulo 4° subquadrato. Long. 1 lin.

Closely allied to the preceding species, but much smaller, and with the antennæ considerably shorter, the 4th joint thereof being scarcely so long as broad; the sculpture of the front parts of the body is scarcely so distinct as in *T. rufescens*, but in other respects the two species are very similar.

Under seaweed, in company with *T. rufescens*.

23. *Oxypoda japonica*, n. sp. Nigro-fusca, antennarum basi piceo-testaceo, pedibus elytrisque testaceis, his circa scutellum margineque laterali infuscato, prothorace lateribus, abdominisque segmentorum marginibus obscure testaceis. Long. $1\frac{2}{3}$ —2 lin.

Allied to *O. luteipennis*, but at once distinguished by its much shorter antennæ. These have the basal joints obscurely yellowish, the 3rd joint a little longer than 2nd, 4—6 differing little from one another, each about as long as broad, 8—10 slightly transverse, 11th pointed, about as long as the two preceding. Thorax distinctly narrowed in front, finely punctured, the sides broadly yellowish, the base a little sinuate on each side close to the hind angles, so that these are nearly right angles. Elytra coloured and punctured as in *A. luteipennis*, deeply sinuate at the outer angle. Hind body pointed behind, very densely

and extremely finely punctured, the hind margins of the segments pale. Legs yellow, basal joint of hind tarsi about as long as the three following joints together.

Two specimens.

24. *Oxyptoda proba*, n. sp. Nigra, sericeo-pubescent, antennarum basi, pedibus, anoque testaceis, elytris testaceo-brunneis, lateribus obscure infuscatis; abdominis segmentorum marginibus testaceis. Long. fere $1\frac{1}{2}$ lin.

Very closely allied to *O. umbrata*, Grav., and differing therefrom mainly by some differences of colour, but also with other slight distinguishing characters. The antennæ appear to be a little longer than in *umbrata*; their base is distinctly yellow, the margins of the thorax are distinctly paler, the elytra are paler, and distinctly infuscate at the sides, the hind margins of the abdominal segments are very distinctly ferruginous.

Two specimens.

Obs.—There is also in the collection of Mr. Lewis a single specimen of another species of *Oxyptoda*. Its description I am scarcely able to make satisfactorily on this individual.

25. *Homalota transfuga*, n. sp. (affinis *H. æneicollis*). Nigro-fusca, antennarum basi, pedibus, elytrisque testaceis, prothorace transversim sub-quadrato, elytris angustiore, abdomine segmentis 2—4 minus crebre, 5 et 6 parce punctatis. Long. $1\frac{2}{3}$ lin.

Mas, abdomine segmento 7^o dorsali apice fortiter crenulato (dentibus circiter 6.)

Closely allied to *H. æneicollis*, Sharp, and differing from it chiefly as follows; *H. transfuga* is a little narrower, and the antennæ are a little shorter, the 4th and the 11th joints being distinctly shorter; the head and thorax are not at all shining, and have no brassy lustre at all. The thorax is rather narrower, and a little less transverse, and rather more finely and closely punctured.

Three specimens.

26. *Homalota melanaria*, Sahl. Specimens of this species do not differ from our European individuals. There are also in Mr. Lewis's collection seven other specimens belonging to this genus, apparently representing seven

different species; but their identification and description must be left till more material is received.

27. *Homalota Lewisa*, n. sp. (affinis *H. planæ*). Parallela, subdepressa, nitidula, castanea, antennarum basi, pedibusque testaceis; capite, abdomineque ante apicem fuscis; abdomine minus crebre, fortiter punctato. Long. $1\frac{1}{4}$ lin.

Mas, prothorace medio profunde bi-impresso, abdomine segmento 7° dorsali, medio rotundato producto, utrinque dente minore, acuminato, incurvato.

Fem. latet.

I describe this species on a single male individual, and my description therefore may prove in some points to be only applicable to that sex. Antennæ short, and stout, much thickened towards the extremity, the three or four basal joints yellow, the rest infusate, 3rd joint rather longer than 2nd, 4—10 transverse, similar to one another in length, each broader than its predecessor, last joint stout, longer than the two preceding. Head blackish, all the back part densely and coarsely punctured, the extreme front part shining and impunctate, the eyes large and prominent. Thorax transverse, the sides rounded, and distinctly narrowed behind; it is rather narrower than the elytra, of a brownish colour, rather strongly and closely punctured, the disc with a large profound double impression. Elytra shining yellowish, distinctly longer than the thorax, rather strongly but not closely punctured. Hind body parallel, of a brownish colour, with the penultimate segments darker; it is shining, and rather strongly and sparingly punctured, the 5th and 6th segments more sparingly than the basal ones. The legs are yellow.

Mitzyama.

28. *Homalota distans*, n. sp. (affinis *H. palustri*, Kies.) Nitidula, parcius punctulata, nigra, pedibus testaceis, antennis piceis basi sordide testaceis, elytris brunneis nitidulis, abdomine parcius punctato. Long. $1\frac{1}{3}$ — $1\frac{1}{2}$ lin.

Mas, abdomine segmento 7° dorsali granulato asperato.

Antennæ a little thickened towards the extremity, pitchy with the basal joint yellow, and the 2nd and 3rd not so dark as the others, 3rd joint shorter than 2nd, 4—10 each distinctly stouter than its predecessor, but scarcely differing from one another in length, the penultimate joints dis-

tinctly transverse, 11th joint long, and rather stout, quite as long as the two preceding joints together. Head shining black, scarcely punctured, a little narrower than the thorax, the palpi yellowish. Thorax rather narrower than the elytra, distinctly broader than long, nearly straight at the sides, quite shining, black or pitchy, very sparingly punctured. Elytra one and a-half times as long as the thorax, of a dirty yellowish or brownish colour, shining, extremely finely and only moderately closely punctured. Hind body black, with the basal segments sparingly and finely punctured, the apical ones nearly impunctate. Legs yellow.

In the male the dorsal plate of the 7th segment of the hind body is sprinkled on the upper side with rather coarse granulations; it is truncate at the extremity, and has a raised line or elongate tubercle extending forwards from each angle of the truncation.

About a dozen specimens, all however in such bad condition that I have had some difficulty in drawing up the above description.

29. *Homalota vivida*, n. sp. (affinis *H. clientulæ*). Rufotestacea, nitidula, capite abdomineque ante apicem nigricantibus; elytris externe leviter infuscatis, crebre subtiliter punctatis; abdomine segmentis 2—4 crebre 5 et 6 parcius punctatis. Long. $1\frac{1}{3}$ lin.

This species is allied to *H. clientula*, but is much more brightly coloured, and has the antennæ thicker towards the extremity. Antennæ distinctly thickened towards the extremity, yellow, the apical joints a little dusky, 3rd joint shorter than 2nd, joints 4—10 scarcely differing from one another in length, but each a little broader than its predecessor, joints 8—10 transverse, the 10th very distinctly so. Head black, not much more than half as broad as the thorax, the palpi yellow. Thorax very transverse, rounded at the sides and a little narrowed in front, slightly narrower than the elytra, reddish-yellow, very finely punctured. Elytra a little longer than the thorax, yellow, infuscated at the sides near the hind angles, finely punctured. Hind body yellow, with the segments before the extremity infuscate; it is finely and moderately closely punctured, the apical segments more sparingly than the basal ones, it is but slightly narrowed towards the extremity. Legs yellow.

30. *Deinopsis modestus*, n. sp. Nigro-fuscus, opacus, dense sericeo-pubescent, pedibus rufo-testaceis, antennis fuscis; basi, ore, palpisque testaceis. Long. $1\frac{1}{4}$ lin.

Much smaller than *D. furcatus*, about the size of *Myllæna dubia*. In form and structure presenting a great resemblance to *D. furcatus*, but differing from it as follows:—The antennæ, palpi and legs are paler in colour, and the front margin of the thorax behind the head is distinctly yellow, and the joints of the antennæ are distinctly shorter.

31. *Tachinus mimulus*, n. sp. Oblongus, nigro-piceus, nitidus, antennarum basi, pedibus thoracisque limbo testaceis; elytris thorace plus sesqui longioribus, nigro-piceis, vittâ intramarginali, apiceque dilutioribus. Long. 2 lin.

Nota.—*T. marginello* peraffinis, notis sexualibus tantum differt.

Mas, abdomine segmento 7° dorsali breviter 4-dentato, dentibus intermediis magis prominulis: segmento 6° ventrali late semicirculariter emarginato; 7° breviter 4-dentato, medio profunde emarginato.

Fem., abdomine segmento 7° dorsali utrinque dente sat elongato, medio laminâ latâ, apice truncatâ.

This species, in size, colour, punctuation, and the structure of its antennæ, most closely resembles *T. marginellus*; it is, however, a little broader, and very readily distinguished by the sexual characters. In the male the structure of the dorsal plate of the 7th segment is similar to that of *marginellus*, but the four teeth are broader and shorter; the ventral plate of this segment is similar to that of *marginellus*, but the ventral plate of the 6th segment is very different; it is furnished in the middle with a very broad semicircular notch, which is furnished at the sides and base with minute asperities; in front of this notch the segment is depressed, the depression being limited in front by a roughened space.

In the female the dorsal plate of the 7th segment has in the middle a very broad plate, the extremity of which is nearly truncate, being very obtusely acuminate in the middle; on each side of this is a rather stout tooth, projecting farther back than the extremity of the central plate.

Common.

32. *Cilea silphoides*, Lin. Two specimens appear to be quite similar to our European individuals.

33. *Coproporus* spec.? There is a single mutilated individual only of this species, closely resembling the *C. colchicus*, but considerably larger; I must leave its description till more specimens are obtained, but I think it worth while to mention the occurrence of the genus in Japan.

34. *Tachyporus celatus*, n. sp. Nigricans, antennis piceis, basi pedibusque testaceis; thorace elytrisq. rufotestaceis, his lateribus nigris. Long. $1\frac{1}{2}$ lin.

Mas, tarsi anticis leviter dilatatis, intermediis simplicibus, abdomine seg. 7^o ventrali triangulariter emarginato, 6^o simplice.

Var. Prothorace elytrisq. piceo-infuscatis.

This species is closely allied to *T. 4-scopulatus*, Pand.; it is similar in colour (except that the head and thorax are of a redder-yellow colour,) and in form, and also in the structure of the antennæ, but is readily distinguished by the male characters, the front tarsi in that sex being only slightly dilated, and the intermediate tarsi quite simple. Our British *T. humerosus* is smaller, and has the hind margin of the 6th segment beneath distinctly emarginate in the male, while this segment is quite simple in *celatus*. The dark variety somewhat approaches *T. pusillus* in appearance.

Common.

Besides the *T. celatus* there is a single specimen of another very distinct species in Mr. Lewis's collection. It has unfortunately lost its antennæ, and must remain without name till more specimens are found.

35. *Conurus germanus*, n. sp. Nigricans, antennarum basi pedibusque testaceis, elytris thorace evidentem longioribus, basi late indeterminate rufescentibus. Long. $2\frac{1}{4}$ lin.

Closely allied to the European *C. pubescens*, and only easily distinguished therefrom by the structure of the antennæ; these organs are not quite so long and are much less thickened towards the extremity than they are in *pubescens*. They are yellow at the base, more or less dark towards the extremity, with the apical joint

paler; the 1st and 2nd joints have each on their inner side two distinct outstanding black setæ; the 3rd joint is less than twice as long as the 2nd; from the 4th to the 10th each joint is just a little stouter, but distinctly shorter than its predecessor; the 10th about as long as broad. In other respects this insect appears greatly to resemble *pubescens*, but the legs appear a little shorter, and the hinder angles of the thorax a little more produced behind than in *pubescens*.

Among dead leaves; rare.

36. *Conurus pumilus*, n. sp. Gracilis, nigro-fuscus, opacus, antennis pedibusque testaceis, elytris thorace evidenter longioribus, maculâ basali pallidâ; antennis apicem versus vix incrassatis, articulis omnibus latitudine longioribus. Long. $1\frac{2}{3}$ lin.

Allied to *C. litoreus*, in form and colour and sculpture, but only one-third the size. The antennæ are pale yellow, slender and elongate; the basal joints with some distinct black setæ; the 10th joint distinctly longer than broad. The thorax is about as long as it is broad at the base, blackish; the elytra are coloured as in *litoreus*, and their sculpture, as well as that of the thorax, is also similar to *litoreus*.

Among dead leaves; rare.

37. *Conurus pedicularius*, Grav.? Besides the above *Conuri*, there is also a specimen in bad condition, which I am unable to distinguish from the pale form of *C. pedicularius*. I think it quite likely, however, that a series of specimens would show it to be a distinct species.

38. *Megacronus setiger*, n. sp. Elongatus, niger, nitidus, antennarum basi apicæque, pedibus, elytrorumque maculâ magnâ humerali testaceis; elytris seriebus septem punctis setigeris; abdomine crebre fortiter punctato, fortiter setigero. Long. $3-3\frac{1}{4}$ lin.

Similar in form to *M. analis*, but narrower. Antennæ rather long, thickened towards the extremity, two basal joints yellow, the rest pitchy, but the terminal one (or two) again paler; joints 3—5 longer than broad, 7 and 8 about as long as broad, 9 and 10 transverse, 11th joint not so long as the two preceding together (in the ♂), or considerably shorter (♀). Palpi yellow. Head and thorax similar

to the same parts in *analis*. Elytra much longer than the thorax, black, with a large humeral spot, reaching nearly to the suture, yellow, the apical margin also paler. Each with seven distinct and regular rows of setigerous punctures, one being close to the suture, and another contiguous to the outer margin, about 11 or 12 punctures in each row. Hind body coarsely and rather closely punctured, except the basal segment, which is smooth in the middle; the pubescence very distinct and rigid. Legs yellow.

In the male the front tarsi are evidently dilated, and the 7th segment of the hind body is, on the under side, provided near the extremity with a deep longitudinal impression, the sides of which are elevated and roughened.

In mushrooms at Nagasaki.

39. *Megacronus princeps*, n. sp. Niger, antennarum basi apiceque, et pedibus testaceis; elytris rufis, seriebus septem punctorum impressis. Long. $3\frac{1}{2}$ lin.

Allied to *M. setiger*, but rather broader, with the elytra entirely red, and the antennæ rather longer and more slender. Antennæ distinctly thickened toward the extremity, the two basal joints yellow, the 3rd pitchy yellow, 4—9 pitchy, the two apical joints again pale yellow. Palpi yellow. Head small, not half as broad as the thorax, shining black, impunctate. Thorax broader than long, rather broader than the elytra, a little narrowed in front, shining black, impunctate, except for a few punctures placed close to the side and front margins. Elytra longer than the thorax, shining red, each with some regular rows of impressed setæ-bearing punctures; in the sutural row there are about thirteen, in the others ten or eleven punctures. Hind body black, with the margins of the segments a little reddish, that of the 6th segment more broadly so than the others; the basal segment is almost impunctate, and the following one is more sparingly punctured than the others, which are rather coarsely and closely punctured. Legs yellow.

Kawatchi, October, 1871. A single female example.

40. *Bryoporus Lewisius*, n. sp. Elongatus, angustus, rufus, capite piceo, elytris nigris apice rufescentibus, irregulariter subseriatim punctatis, abdomine sat crebre punctato, evidenter setigero. Long. $2\frac{1}{4}$ lin.

Antennæ yellow, rather long and stout, distinctly thick-

ened towards the extremity, 3rd joint evidently longer than the short 2nd joint, 4—6 each longer than broad, 7th and 8th about as long as broad, 11th rather stout, longer than the preceding. Palpi yellow, head pitchy, impunctate; thorax shining red, the whole of the disc impunctate, but with sparing, fine, isolated punctures near the margins. Scutellum reddish, impunctate. Elytra longer than the thorax, black, with the apex reddish, with the usual sutural series of punctures, and with numerous other punctures irregularly placed. Hind body reddish, neither densely nor strongly punctured, with a distinct depressed long and fulvous pubescence, and the hind margins of the segments with stouter black setæ. Legs red.

A single specimen in mushrooms at Nagasaki.

41. *Bolitobius japonicus*, n. sp. (affinis *B. trinotati*). Antennis gracilioribus, piceis, basi testaceis; capite nigro, thorace testaceo, plus minusve infuscato; elytris testaceis, parte apicali nigricante, seriebus punctorum multipunctatis, abdomine rufescente apice summo piceo. Long. 2—2½.

Allied to *B. trinotatus*, and apparently like that species rather variable in size and colour, and differing as follows: it has the antennæ more slender and darker-coloured, with a much more elongate apical joint; the dark portion of the elytra is usually greater in extent, and the rows of punctures have 10—12 punctures in each row. It is also usually smaller than *trinotatus*. So far as I can see the male is distinguished from the female only by having the hind margin of the ventral plate of the 8th segment a little angulate in the middle; having seen, however, only half-a-dozen specimens in bad condition, I am not sure that I have correctly identified the male.

Among dead leaves.

42. *Heterothops cognatus*, n. sp. Niger, nitidus, minus dense punctatus, antennarum articulo primo, pedibusque piceo-testaceis; capite breviter ovato, elytris thorace longioribus, summo apice rufescentibus. Long. 2—2½ lin.

This species greatly resembles our *H. binotatus*, but is much more sparingly punctured. In the form of its head and the structure of its antennæ it is intermediate between that species and *H. prævius*. The basal joint of the antennæ is yellowish, and the one or two following joints are indistinctly paler than the rest. The elytra are con-

siderably longer than the thorax, black with the extremity narrowly pale; they are moderately strongly, but not closely punctured. Hind body rather strongly and not densely punctured. Legs yellowish, the tibiæ pitchy.

Abundant in refuse.

RIENTIS, nov. gen. (juxta *Astrapæum* locandus).

Genis haud marginatis.

Thorace minus orbiculato.

Antennis rectis, crassiussculis.

Palpis maxillaribus articulo ultimo oblongo, labialibus articulo ultimo leviter securiformi.

Tarsis anterioribus leviter dilatatis.

The anomalous insect for which this genus is founded is about the size and has somewhat the appearance of *Philonthus cribratus*. Labrum bilobed. Mandibles short, stout at the base, curved, slender and pointed at the extremity, with a tooth near the base. Palpi short and stout, the last joint of the maxillary longer than the preceding, cylindric; labial palpi with the 1st and 2nd joints short and but little longer than broad, last much larger, hatchet-shaped. Genæ immarginate. Thorax with the upper marginal line very distinct, and not deflexed at the front angles, at the sides beneath with a rather large parchment-like stigmatic membrane. The anterior and middle coxæ large, the latter contiguous. The front tarsi only moderately dilated; the front tibiæ strongly spined.

I have seen but a single male specimen of this interesting insect.

43. *Rientis parviceps*. Nigerrimus, antennis pedibusque piceis, capite thoraceque pernitidis, obsolete punctulatis; elytris abdomineque fortiter punctatis. Long. $6\frac{1}{2}$ lin.

Mas, abdomine segmento 7^o ventrali margine posteriore leviter emarginato.

Fem. latet.

Rather longer but not broader than *Astrapæus ulmi*. Antennæ pitchy, stout, much shorter than head and thorax; 3rd joint longer than 2nd; joints 6—10 each a little broader than its predecessor; the 10th not quite so long as broad; 11th joint longer than 10th, sinuate at the extremity. Head small, not two-thirds the width of the thorax at the base, the eyes only moderately large; it

is sparingly and finely punctured, and has also some coarse punctures at the back about the hind angles. Thorax nearly as long as it is broad behind, its width there about that of the elytra; it is a little narrowed in front, but not rounded at the sides; it is extremely shining, finely and obsoletely punctured, without any discoidal punctures. The scutellum is coarsely and closely punctured; elytra about as long as the thorax, shining black, sparingly but very strongly punctured; the pubescence very scanty and indistinct. Hind body rather robust, only moderately narrowed towards the extremity, the apical segments pitchy at their extremities, its punctuation close, deep and coarse. The legs are pitchy black. The under surface strongly punctured.

Under dead leaves, Copper Temple, Nagasaki, a single example only.

ALGON, nov. gen. (*Quediini*).

Antennæ rectæ.

Palpi maxillares articulo ultimo oblongo, labiales articulo ultimo securiformi.

Pedes intermedii contigui.

Tarsi 5-articulati.

The remarkable insect for which this genus is established, is just intermediate in facies between *Quedius* and *Ocyppus*. The structure of its thorax is altogether that of the *Quedii*, and its natural position is between *Quedius* and *Astrapæus*. The labrum is deeply emarginate in the middle and has a large membranous appendage in front. The mandibles are broad and robust, bisinuate (rather than toothed) on the inner side. The 3rd joint of the maxillary palpi is much shorter than the 2nd and considerably narrower at the base than at the extremity; the 4th joint is longer than the 3rd. Last joint of the labial palpi very dilated and strongly securiform. Head broad and flat, abruptly constricted behind so as to form a comparatively narrow neck. Thorax with the upper marginal line uninterrupted throughout its circumference, and limiting the front angles as seen from above; the margin beneath furnished with a parchment-like stigmatic membrane. Anterior tarsi dilated, but not so patellated as in *Quedius* or *Astrapæus*. The middle tibiæ strongly spined; the basal joint of the four posterior tarsi about as long as the three following together. Anterior and middle coxæ

very large; the middle coxæ separated from the hind coxæ only by a narrow portion of the metasternum.

44. *Algon grandicollis*, n. sp. Niger, antennis articulo primo rufo, apiceque flavescens, pedibus piceis; capite prothoraceque nitidissimis; elytris crebre fortiter punctatis, opacis; abdomine crebre punctato, indistincte opalescente. Long. 9 lin.

Mas, palpis maxillaribus articulo ultimo leviter incrassato, apice oblique truncato; abdomine segmento 7^o ventrali apice profunde triangulariter exciso.

Fem., palpis maxillaribus articulo ultimo simplicibus, cylindricis.

Antennæ slender, not in the least thickened outwardly, the basal joint long, reddish, the following joints pitchy, but the two or three terminal joints yellowish, 3rd joint longer than 2nd, not so long as the first; from this to the 10th, each joint is shorter than its predecessor, even the 10th, is considerably longer than broad; 11th joint longer than 10th, obliquely sinuate at the extremity. Head much narrower than the thorax, broad and subdepressed, the eyes large and encroaching much on the upper surface; it is black and shining, almost impunctate (or rather obsoletely and sparingly punctured), with large and small punctures behind the eyes, on the under surface it has a few scattered but distinct punctures; the palpi are reddish. The thorax is ample, it is broader than the elytra, and very nearly as long as broad; it is slightly narrowed in front, it is very black and shining, and without any discoidal punctures. The scutellum is closely and strongly punctured. The elytra are rather shorter than the thorax; they are coarsely and closely punctured, not shining. The hind body is elongate, and but little narrowed to the extremity; it is rather coarsely and closely punctured, the 7th segment more sparingly and finely punctured than the others. The legs are pitchy.

Under dead leaves, Copper Temple, Nagasaki, also at Maiyasama, Hiogo.

45. *Velleius dilatatus*, Fab. I have a single male specimen of this species in my collection from Japan, where, however, it has not been found by Mr. Lewis. Mr. Janson, from whom I obtained this specimen, assures me there is no error as to the locality, though I admit I entertain doubts on this point: at the same time this individual differs

decidedly from our European specimens, the antennæ being more strongly serrate, and the humeral angle of the elytra not being at all yellow, and the thorax decidedly broader. These points are, however, not sufficiently striking to justify the establishment of a new species, unless confirmed by a series of specimens. I may add that I suppose this individual if not from Japan to be from China, where also *V. pectinatus* occurs.

46. *Velleius pectinatus*, n. sp. Niger, thorace margine dilatato; antennis articulis 4—10 intus fortiter biramosis. Long. 9—11 lin.

Mas, abdomine segmento 7° ventrali apice evidentem, 6° obsolete emarginato.

This species is closely allied to our *V. dilatatus*; it is similar in size, form, punctuation and colour, but the antennæ are very different; they are shorter than in the European species, the 3rd joint being notably shorter, it is much broader at the extremity than at the base, joints four to ten are strongly produced on the inner side, the produced part of each joint being divided into widely separated portions; the 11th joint is very large and stout, and quite as long as the three preceding together. The antennæ do not differ in the two sexes to any notable extent.

The male is without the bunches of fine hairs on the 5th and 6th segments beneath.

In company with *Cossus* in May and June, both at Hiogo and Nagasaki.

47. *Quedius Juno*, n. sp. Niger, capite thoraceque nitidissimis; antenarum basi, tibiis tarsisque rufis, illarum medio picco, articulis ultimis flavis, femoribus piceis; elytris scutelloque fortiter punctatis, abdomine versicolore apicem versus attenuato, minus crebre punctato. Long. $5\frac{1}{2}$ lin.

Antennæ slender and elongate, the basal joints reddish, the middle ones infuscate, the two apical ones yellow, 3rd joint very long, from 4—10, each is a little shorter than its predecessor, but even the 10th twice as long as broad; 11th joint longer than 10th, obliquely sinuate at the extremity. Head narrower than the thorax, impunctate, except for six or seven setigerous punctures at the margin of the eye. Eyes very large and prominent. Thorax very convex transversely, almost straight at the sides, the anterior angles rather produced. Scutellum very coarsely punctured.

Elytra about the length of the thorax, coarsely but not densely punctured. Hind-body rather slender, distinctly narrowed towards the extremity, distinctly versicolorous, moderately finely and rather sparingly punctured.

The only specimen I have seen of this remarkable insect is, I believe, a female; it has the front tarsi strongly dilated. I believe it will prove to be the type of a distinct genus approaching *Cyrtothorax* in its characters. It has the inner margin of the thorax furnished with a very large and horny stigmatic shield.

Yamato, Oct. 8, 1871.

48. *Quedius simulans*, n. sp. Niger, nitidus, antennis pedibusque obscure rufis; thorace lateribus subdilato; scutello fortiter punctato. Long. $3\frac{1}{2}$ — $4\frac{1}{2}$ lin.

N.B.—*Q. fulgido* (var. *elytris nigris*) persimilis, scutello evidentè punctato, facile distinguendus.

This insect is very closely allied to the common black-elytraed, domestic form of *Q. fulgidus*, but is at once distinguished by its strongly punctured scutellum: as other points of distinction it may be noted that *Q. simulans* is rather smaller, and has the elytra rather more closely and finely punctured, and the joints of the antennæ very distinctly shorter. The male is generally rather larger than the female, and has the head broader, and joints 4—10 of the antennæ more transverse; in this last point, however, the male varies considerably (in the three specimens before me).

In heaps of refuse.

49. *Quedius lateralis*, Grav. I have a single specimen of this species from Japan, which appears to differ but little from our European individuals. It has not been found by Mr. Lewis, but I have received it from another source.

50. *Quedius parviceps*, n. sp. Niger, nitidus, antennis pedibusque piceis, capite minuto, ovato; thorace orbiculato utrinque serie punctorum quinque impresso; abdomine apicem versus fortiter attenuato, supra leviter metallescente, aequaliter sat crebre punctato. Long. $5\frac{1}{2}$ lin.

This distinct species has at first sight the appearance of *Philonthus politus*. Antennæ pitchy, rather long and slender, scarcely at all thickened towards the extremity, all the joints longer than broad, the third much longer than

the second. Palpi pitchy, their last joint long and slender, paler than the rest. Head very narrow, not half as broad as the thorax, with two punctures on the front between the eyes, and with a few others along the inner margin and at the back of the eyes. Thorax about as long as broad, greatly rounded at the sides and much narrowed in front, near the front on each side the middle with a series of five punctures, and with two or three other punctures between these and the sides. Scutellum impunctate. Elytra rather longer than the thorax, moderately closely punctured. Hind-body black with metallic reflections, very pointed at the extremity, regularly, rather finely and not densely punctured. The legs are pitchy, the tarsi dusky reddish.

A single specimen; it is a male, and has the front tarsi broadly dilated.

51. *Quedius japonicus*, n. sp. (*Q. punctatello* affinis). Niger, nitidus, elytris rufis, fortiter biseriatim punctatis; antennis piceis, pedibus testaceis, tibiis infuscatis. Long. 3 lin.

Allied to *Q. punctatellus*, but with the antennæ more slender, the elytra rather longer, and of a red colour, and the thorax a little more narrowed in front. Antennæ similar to those of *punctatellus*, but considerably more slender. Head formed as in *punctatellus*, but with the eyes notably larger, and with two additional punctures placed in a line between the eyes, as in *scintillans* and its allies. Thorax rounded at the sides, and considerably narrowed in front, with the usual punctures. Scutellum black, impunctate. Elytra longer than the thorax, red, a little infuscate near the scutellum, impressed along the suture, and in this impression with six or seven large punctures, also with two discoidal, not very regular, rows of punctures, and besides this only indistinct traces of punctuation. Hind-body moderately closely punctured. Legs yellowish, with the tibiae darker. The tarsi rather more slender than in *punctatellus*.

Very common in marshy places at Hiogo and Nagasaki.

52. *Quedius pretiosus*, n. sp. Nigricans, nitidus, elytris viridibus, abdomine late versicolore; pedibus (cum coxis) testaceis, tibiis infuscatis; elytris fortiter, subseriatim punctatis; oculis magnis. Long. fere 4 lin.

Mas, tarsis anticis valde dilatatis, abdomine segmento 7°

ventrali profunde triangulariter exciso, segmento 6° medio ante apicem longitudinaliter impresso.

Fem., tarsi anticis leviter dilatatis.

This elegant species is allied to *Q. impressus* by the punctuation of its elytra, and to the *attenuatus* group by its large and prominent eyes. Antennæ rather short, not thickened towards the extremity, the basal joint yellow, the others infuscate; 3rd joint considerably longer than 2nd, 10th quite as long as broad. Head shining black, with four punctures between the eyes placed as in *scintillans*. Thorax piceous, very shining, distinctly narrowed in front, with the usual punctures. Scutellum shining, impunctate. Elytra as long as the thorax, of a beautiful shining-green colour, with a sutural and two discoidal rows of distant large punctures, besides this only obsoletely punctured. Hind-body narrowed towards extremity, of an obscure pitchy-yellow colour, but very strongly iridescent, the side margins distinctly yellowish. The inflexed margin of the thorax and the legs yellow, the tibiæ infuscate.

Three specimens, Nagasaki.

53. *Quedius Lewisius*, n. sp. Niger, nitidus, pedibus testaceis, tibiis et coxis anterioribus infuscatis, elytris fortiter subseriatim punctatis, abdomine minus evidenter versicolore; oculis magnis. Long. 4 lin.

Mas, tarsi anticis valde dilatatis, abdomine segmento 7° ventrali triangulariter exciso.

Fem., tarsi anticis leviter dilatatis.

This species is greatly allied to the *Q. pretiosus*; in form and structure, and even in sculpture, it seems quite similar, but the colour is different and the male characters dissimilar. The stigmatic plate of the thorax is membranaceous.

Two specimens, in a marsh at Hiogo.

54. *Creophilus maxillosus*, Lin. A considerable number of a species of *Creophilus*, brought by Mr. Lewis from Japan, should, I think, be referred to as a variety of *C. maxillosus*. They differ considerably from our European individuals in the disappearance (to a greater or less extent) of the white pubescence of the upper surface, and this not as the result of abrasion. The specimens, however, are very discrepant among themselves as regards the very characters by which they are

distinguished from European and East Siberian individuals. In some specimens the only trace of the transverse white fascia of the elytra is to be found in an ill-defined, narrow, longitudinal line of scanty white hairs near the outer angle of the elytra, and the white pubescence of the upper surface of the hind body is also nearly entirely absent. Some specimens, however, have the transverse white fascia on the elytra quite distinct, though in none is it so broad as in European individuals. The elytra are more sparingly punctured in the Japanese individuals (as is well seen by denuding specimens of their pubescence), this character, indeed, seems to bear a direct proportion to the absence of the white pubescence. There are also two specimens (unfortunately much abraded) which represent the var. *ciliaris*, Steph. (*fulvago*, Mots.), as the black pubescence of the elytra, breast and legs is replaced by a yellowish pubescence. This yellow pubescence is, however, very much less bright in colour than in *fulvago*. I think it advisable to give names to these three forms, and I would call the variety in which the white pubescence is least marked, var. *subfasciatus*; the variety which most nearly approaches our European race, var. *medialis*; and the specimens with the yellowish pubescence, var. *imbecillus*. Individuals of *Creophilus* from Northern China appear not to differ from *C. cinerarius*, Er.; but I may remark that I think it not unlikely it will be ultimately found that *C. maxillosus*, *cinerarius*, *arcticus* and *villosus* cannot be maintained as distinct species, but must be looked on as geographical races of one and the same species.

Mr. Lewis informs me that in Japan the species occurs commonly in carrion in sandy districts.

55. *Leistotrophus gracilis*, n. sp. Niger, tomento fusco-nebuloso vestitus, abdomine segmentis 3°, 4°que medio flavescens; antennis pedibusque testaceis, his femoribus nigro-maculatis. Long. 7 lin.

This species in colour and structure greatly resembles *L. nebulosus*, but is much narrower, and is very readily distinguished by its very slender, and rather elongate antennæ; these are of a yellowish colour, are scarcely thickened towards the extremity, and have even the 10th joint longer than broad; the eyes also approach much nearer to the hinder angles of the head than they do in *nebulosus*.

This species is found at the fermenting sap of trees, especially in bamboo groves where the young shoots have been cut.

56. *Leistotrophus oculatus*, n. sp. Niger, capite, thorace, elytrisque tomento fusco-nebuloso vestitis, abdomine segmentis apicalibus basi cinereo-variegatis; antennarum basi testaceo, tibiis tarsisque fuscis, femoribus apice testaceo-maculatis. Long. 6 lin.

This species at first sight much resembles our *L. murinus*, but when examined is found to possess numerous points of distinction, and its eyes are notably larger than those of *murinus*. The antennæ are rather stout, the basal joints yellowish, the four or five penultimate joints broader than long. The head is rather short, but the eyes are very convex and prominent; the head and thorax are more densely clothed with tomentum than in *murinus*, and have therefore little brassy lustre; the thorax is narrower than in *murinus*, and the sides more sinuate behind the middle. The scutellum, elytra and hind body greatly resemble *murinus*. The legs are much more slender than in *murinus*, and paler in colour.

In dung at Nagasaki, rare.

Obs.—Mr. Lewis's collection contains no insect to which the description of *Trichoderma brevicornis*, Motschoulsky, is applicable.

57. *Eucibdelus japonicus*, n. sp. Capite thoraceque supra nigris, dense punctatis; elytris olivaceis, flavo-pubescentibus, margine laterali ferrugineo; abdomine nigro, segmentorum marginibus ferrugineis, sericeo-variegato; pedibus rufis. Long. 7—8 lin.

Mas, tibiis anterioribus basi gracilioribus; abdomine segmento 7° ventrali medio late exciso, 6° apice obsolete emarginato.

Variat, capite subtus, prothorace angulo antico, antennisque vel ferrugineis, vel nigris.

Antennæ either entirely red or with the external joints black, joints 7—10 distinctly produced and serrate on the inner side, and at the apex of each therefore quite as broad, or rather broader than long; the other joints longer than broad. Head but little broader than the thorax, densely and coarsely but not deeply punctured. Thorax only about half as broad as the elytra, scarcely narrowed

behind, the front angles forming a projecting tubercle; it is longer than broad, like the head densely and coarsely but not deeply punctured, with an indistinct smooth line along the middle. Elytra considerably longer than the thorax, densely but rather unequally clothed with a fine, silky-yellowish pubescence, this nearly wanting about the external angles. Hind body finely punctured and clothed with a variegated silky pubescence. Legs yellow and slender, without any spines; the basal joint of the hind tarsus longer than the two following together. Underside with the metasternum convex, and middle legs rather widely separated.

Beaten off trees on hill-sides at Hiogo and Nagasaki.

This species varies as to the colour of the antennæ and femora, of the margins of the abdominal segments, and underside of the head.

58. *Staphylinus paganus*, n. sp. (affinis *S. chalconcephalo*). Niger, capite thoraceque supra aneis, obscure griseo-pubescentibus, elytris rufo-brunneis, obsolete maculosis; pedibus testaceis, femoribus plus minusve nigro-signatis; abdomine minus evidenter cinereo-maculato. Long. 9 lin. (abdomine extenso).

Mas, abdomine segmento 7° ventrali apice late exciso.

Var., capite thoraceque nigris.

Allied to *S. chalconcephalus*, and similar to it in size and form. Antennæ very similar to *chalconcephalus*. Head and thorax brassy, very densely punctured, the punctuation rather finer and consequently rather denser than in *chalconcephalus*; the thorax rather longer in proportion to its width than in *chalconcephalus*, and the smooth space in front of the scutellum much smaller; the pubescence not so bright-coloured as in *chalconcephalus*. Scutellum densely covered with black tomentum. Elytra about as long as the thorax, reddish, with indications of darker spots. Hind body with a triangular spot of very scanty ashy pubescence in the middle of each segment at the base, and on each side this, a small spot of black tomentum. On the 7th segment the ashy pubescence covers the whole of the base of the segment. On the under side the hind body is rather sparingly punctured, and at the extreme base of each segment (only visible when the hind body is extended) is a very scanty ashy pubescence. The tibiæ and tarsi are yellow: the femora variable in colour, being some-

times yellow, marked with black on the underside, sometimes nearly entirely yellow, and again sometimes nearly entirely black.

The specimens with black head and thorax have, so far as I see, nothing else to distinguish them from those with brassy head and thorax.

Common in woods, under dead leaves and dung.

59. *Staphylinus inornatus*, n. sp. Latior, niger, opacus, nigro-pubescent, capite thoraceque dense sat fortiter punctatis; abdomine segmentis basi bifariam nigro-tomentoso maculatis; clypeo antice leviter emarginato. Long. 12 lin.

Mas, abdomine segmento 7° ventrali medio late exciso, 6° medio ante apicem longitudinaliter levigato, apice emarginato.

The colour of this species is that of the N. American *S. tomentosus*, but the Japan insect is twice as broad as the American one, and more coarsely sculptured. Head narrower than the thorax, densely and coarsely punctured, with obsolete indications of a smooth line along the middle. Thorax almost as long as broad, densely and rather coarsely punctured, with a shining, smooth, narrow space in front of the scutellum, which is obscurely continued forwards as an obsolete carina. Elytra of the length of the thorax. Hind body black, rather sparingly punctured, and the punctuation much concealed by the pubescence; each segment except the last has at the base on each side of the middle a spot of dense black tomentum. The femora are black, with the hind margin yellowish; tibiæ rusty black; the middle tibiæ clothed with strong dense spines, and the anterior tibiæ also strongly spinulose on the outside and behind. The epimera of the mesothorax are broad, and the middle legs not contiguous.

In the male the hind margin of the 7th segment beneath is very broadly excised, a narrow space along the margin of the incision depressed, smooth and shining; the 6th segment has in the middle a smooth space before the extremity, and on each side of this the pubescence is more dense; its hind margin is rather deeply emarginate.

On the sandy shore at Simabara, May, 1870.

60. *Staphylinus subæneus*, n. sp. Niger, capite, thorace, clytrisque subæneis, tibiis ferrugineis; clypeo antice trun-

cato; abdomine obsolete cinereo-variegato, indistincteque bifariam nigro-maculato. Long. 10 lin.

Mas, abdomine segmento 7° ventrali apice (minus late) exciso, ante excisionem leviter longitudinaliter impresso; segmento 6° medio maculâ triangulari dense nigro-pubescente, margine posteriore leviter emarginato.

This species is closely allied to *S. inornatus*. It differs therefrom as follows. It is rather smaller, but distinctly narrower, and the front parts have a distinct brassy tinge; the pubescence of the front parts is of a more rusty colour; the clypeus is scarcely emarginate in front; the hind body has some scanty pale hairs, forming, with the black spots, an obsolete pattern on the upper surface; the tibiæ are paler in colour. The male is remarkable from the patch of dense, black, elongate, and subdepressed pubescence in the middle of the underside of the 6th segment of the hind body.

Mr. Lewis has found but one single individual of this species, but I have received two others from another source.

In a pathway at Nagasaki, 1865.

61. *Goërius carinatus*, n. sp. Niger, pedibus elytrisque ferrugineis, his thorace multo brevioribus; thorace elongato, cumque capite dense punctato, subtiliter carinato; abdomine segmentis 6° 7°que apicem versus ferrugineis. Long. 11 lin.

Allied to *G. olens*, but narrower, with longer thorax, &c. Antennæ shorter than in *olens*, but similarly formed, the 1st joint dark reddish. Head as broad as the thorax; all its hind part very densely punctured; the front part more sparingly punctured, and therefore a little shining; the middle with a very fine smooth line. Thorax longer than broad, very densely punctured, with a fine carina-like line along the middle. Elytra dull reddish, clothed with a fulvous pubescence, densely punctured. Hind body rather closely and very finely punctured; the 6th and 7th segments reddish behind. Legs reddish, anterior tibiæ with ten or twelve stout spines (besides those arming the extremity).

The only specimen I have seen is probably abraded, and it is likely that good specimens would have the head and thorax clothed with tomentum.

Maiyasama, Oct. 1871, under dead leaves.

There is a single specimen of an allied species taken by Mr. Lewis, at the Moon Temple, Kobé; it has the front tibiæ more sparingly spined, and appears to have the abdomen variegated towards the extremity. It is much too immature, however, to describe.

62. *Ocypus Lewisius*, n. sp. Elongatus, parallelus, opacus, niger, capite thoraceque æneis, dense punctatis; elytris fuscis thorace multo brevioribus, abdomine obscure flavo-variegato, pedibus piceis. Long. 10 lin.

Somewhat resembling *O. cupreus*, but much larger, with the head and thorax more opaque. Antennæ of an obscure reddish colour, rather long; 3rd joint considerably longer than 2nd, 4th to 10th each a little shorter than its predecessor, even the 10th a little longer than broad; 11th joint rather longer than 10th, obliquely sinuate-truncate at the extremity, and pointed on one side. Mandibles robust, toothed. Head brassy, nearly as broad as the thorax, very densely and moderately finely punctured, with a fine depressed pubescence. Thorax elongate, longer than broad, quite straight at the sides; its punctuation and pubescence the same as on the head, without carina, except that there is a short and very narrow shining space in front of the scutellum. Scutellum clothed with a black pile. Elytra of a dark pitchy-red colour, much shorter and rather narrower than the thorax, densely but not finely punctured. Hind body rather similar to that of *cupreus*, being obscurely variegated; each segment with two impressed points, not so distinct as in *cupreus*. Legs pitchy; front tibiæ not spinulose.

A single specimen taken on the beach at Kobé, Oct. 1869.

63. *Ocypus parvulus*, n. sp. Elongatus, angustulus, parallelus, nigro-subæneus, dense punctatus; elytris thorace brevioribus; pedibus piceis, tibiis tarsisque obscure testaceis. Long. 6 lin.

Allied to *O. cupreus*, but smaller and narrower. Antennæ rather long, reaching nearly to the back of the thorax, 3rd joint longer than 2nd, each joint is longer than broad, the 11th about as long as the 10th, the 1st and 2nd joints are pitchy reddish, the rest black. The

mandibles are pitchy, stout, obtusely toothed in the middle. The head is obscurely brassy black, densely and rather coarsely punctured. The thorax is longer than broad, quite as broad as the elytra, very slightly narrowed in front, its colour and sculpture the same as on the head. Scutellum clothed with black pile. Elytra obscurely brassy black, their punctuation similar to that of *cupreus*; they are distinctly shorter than the thorax. Hind body rather closely, and moderately finely punctured, with a black pubescence; the basal segment with yellowish pubescence, and the 5th and 6th segments with a patch of scanty yellowish hairs in the middle at the base; the hind margins of the terminal segments a little reddish. Legs pitchy, the tibiæ and tarsi paler, the front tibiæ short and stout, with two or three stout spines behind.

In the male, the hind margin of the 7th abdominal segment is on the under side broadly, but not deeply, excised in the middle.

A single specimen, Maiyasama, August, 1871.

64. *Ocypus gloriosus*, n. sp. Elongatus, parallelus, niger, capite, elytris abdominisque apice dense auro-pubescentibus; thorace abdominisque basi nigro-pubescentibus, pedibus testaceis. Long. $7\frac{1}{2}$ lin.

The form of this exquisite insect is that of *Ocypus cupreus*, and it is but little larger than that species. The antennæ are similarly formed to those of *O. cupreus*, but are longer; the two basal joints are reddish. The head is brassy, coarsely and closely punctured, and densely clothed with a beautiful, shining, golden pubescence. The thorax, like the head, is densely and coarsely punctured, and is clothed with a black pubescence, as also is the scutellum. The elytra are shorter than the thorax, and are so densely clothed with a golden pubescence as not to permit their colour or sculpture to be seen. The hind body is very densely and finely punctured, the basal segments densely clothed with a black pubescence; the 5th (except at the hind margin), the 6th and 7th segments with a golden pubescence. The legs are yellow; the under-side of the insect is covered with a golden pubescence, less dense than that on the upper parts.

A single specimen of this, one of the most elegant of the *Staphylinidæ*, has been found at Sakai, near Osaka. Its general structure is quite that of *O. cupreus*.

PHUCOBIUS, nov. gen. (juxta *Ocypus* locandus).

Palpi labiales articulo ultimo elongato, cylindrico.

Ligula emarginata.

Caput collo lævigato.

The very interesting insect for which this genus is established appears to combine the characters of *Ocypus* and *Philonthus* in a remarkable manner, and would probably, at first sight, be considered an aberrant *Philonthus* rather than an *Ocypus*. Its divided and emarginate ligula distinguish it, however, in an unmistakable manner from the former of these genera; and the slender palpi and smooth neck, as well as its general facies, distinguish it from *Ocypus*. Mandibles elongate, acuminate, toothed. Paraglossæ large, reaching quite to the apex of basal joint of labial palpi; 1st joint of labial palpi rather long and slender, scarcely thickened at its extremity; 2nd joint much shorter than 1st; 3rd joint elongate and slender, quite twice as long as the 2nd. Maxillary palpi with the three terminal joints subequal in length; the 2nd joint curved, and stouter than the two apical ones; the 4th joint slender and cylindric. Head with a strongly and very abruptly constricted neck. Upper marginal line of thorax extremely deflexed at the front angles. Anterior tarsi strongly dilated in each sex. The middle coxæ almost, but not absolutely contiguous.

The nearest ally of this insect I consider to be *Tasgius ater*. The *Quedius pectoralis* of Boheman, perhaps, belongs to this genus; and I have from China a species I should suppose to be that of Boheman, except that the words "caput ovatum" are not at all applicable to it.

65. *Phucobius simulator*, n. sp. Elongatus, parallelus, niger, capite prothoraceque viridescens, nitidis; clytris rufis, dense subtiliterque punctatis, metasterno rufescente. Long. 5—6 lin.

Mas, segmento 7° ventrali apice triangulariter exciso, excisione parvâ; segmento 6° margine posteriore leviter emarginato.

Antennæ black, reaching about half-way the length of the thorax, moderately stout, not thickened towards the extremity; 3rd joint considerably longer than 2nd, 4—6 differing little from one another, 7—10 each a little shorter than its predecessor, the 10th not so long as broad, the 11th strongly emarginate at the extremity. Head as

broad as the thorax, quadrate, very truncate behind; with some coarse punctures along the inner margin of the eye, with two punctures placed transversely in a line with the front margin of the eyes, with two other such punctures behind these, and with numerous punctures at the hind angles; the hind margin distinctly notched in front of the neck. Thorax a little narrower than the elytra, quadrate, scarcely if at all longer than broad, quite truncate in front, the anterior angles well marked; it is but little narrowed behind, and has on each side of the middle a row of discoidal punctures, simulating those of *Philonthus*, varying in their number from two to six on each side; except for this the disc is impunctate. The elytra are but little longer than the thorax, densely and finely punctured, red, dull; scutellum large, black, densely punctured. Hind body closely and finely punctured, the 7th segment more sparingly punctured on the upper side. The metasternum is reddish, and this colour sometimes extends to the under surface of the hind body. The basal joint of the hind tarsus is longer than the three following joints together.

Abundant under seaweed at Amakusa and Iwosima.

66. *Philonthus* (*Cafius*, Thomson) *nudus*, n. sp. Niger, nitidus, parcius punctatus, thorace serie dorsali quadripunctato, punctis magnis profunde impressis; elytris fortiter profunde punctatis. Long. 4—5 lin.

Var. *Elytris rufis*.

Though this species has much the form of *P. xantholoma*, it appears at first sight very different from that insect because of its sparingly punctured and shining elytra. Antennæ rather short, scarcely thickened towards the extremity, black, joints 7—10 a little transverse. Head (variable in size) shining black, with some very large punctures, placed five in an irregular row between the eyes, five in a curved row behind these, and one or two others near the hind angles. Thorax black and very shining, quite as long as broad, nearly straight at the sides; on each side the middle with a row of four very large punctures, and with four or five other large punctures between these and the front angles. Scutellum punctured. Elytra longer than the thorax, coarsely and deeply punctured, almost destitute of pubescence, but furnished at the extremity with fine long cilia. Hind body moderately closely punctured, and finely and sparingly pubescent, distinctly shining. The legs are pitchy,

the front tarsi in the male scarcely dilated; the middle coxæ moderately distant.

This insect is common under seaweed at Amakusa and Iwosima.

67. *Philonthus* (*Cafius*, Thomson) *vestitus*, n. sp. Elongatus, niger, opacus, capite thoraceque crebre fortiter punctatis, omnino opacis, illo medio lineâ elevatâ, impunctatâ, abdomine segmentis 2—6 dense subtiliter punctatis, segmento 7° supra parce, subtus dense, punctato. Long. $3\frac{1}{2}$ — $4\frac{1}{2}$ lin.

Intermediate between *P. xantholoma* and *sericeus*, this species is remarkable by the dense and strong, and yet not deep or distinct punctuation of its head and thorax. The antennæ are black, moderately long and stout, not at all thickened towards the extremity; 3rd joint much longer than 2nd, 4—10 differing but little from one another, the 10th about as long as broad. Head quite as broad as the thorax, remarkably opaque, strongly punctured, but the punctuation but little impressed, and not distinct; it has an impunctate space along the middle. Thorax narrower than the elytra, distinctly narrowed behind, strongly punctured, but with a broad elevated space along the middle, smooth; it is very opaque, with the exception of the middle line, and even this is scarcely shining. Elytra considerably longer than the thorax, densely and finely punctured, very opaque. Hind body, both on the upper and under sides, densely and finely punctured, except the upper side of the 7th segment, which is very sparingly punctured. The legs are pitchy black, the intermediate coxæ not contiguous, the front tarsi dilated in both sexes, the basal joint of hind tarsus longer than the apical joint. The male has a deep notch in the middle of the hind margin of the 7th segment, and the 6th segment very slightly emarginate behind.

In company with *C. nudus*.

68. *Philonthus* (*Cafius*, Thomson) *histrion*, n. sp. Elongatus, niger, subopacus, pedibus piceis; capite thoraceque crebre fortiter punctatis, medio impunctatis; abdomine dense punctato, segmento 7° supra et infra parce punctato. Long. 3—4 lin.

This species is very closely allied to the *P. vestitus*, but is distinguished as follows: it is rather smaller and more slender, the antennæ are more slender, the head and thorax, though not shining, have not the very remarkable

dulness of the *P. vestitus*, and the 7th segment of the hind body beneath is much more sparingly punctured.

In company with *P. nudus* and *vestitus*.

69. *Philonthus* (*Cafus*, Th.) *mimulus*, n. sp. Elongatus, niger, subopacus, antennis extrorsum pedibusque obscure rufis; capite thoraceque crebre fortiter punctatis, medio impunctatis; abdomine crebre (segmento 7° parce) punctato. Long. $3\frac{1}{2}$ lin.

Closely allied to the *P. histrio*, rather less depressed; the antennæ red towards the extremity, the sculpture of the upper surface rather coarser and less dense, and the underside of the head more sparingly punctured. Antennæ pitchy towards the base, red towards the extremity, the penultimate joint about as long as broad. Palpi reddish. Head (variable in size) densely and very coarsely punctured, with a broad space along the middle smooth. Thorax narrower than the elytra, longer than broad, distinctly narrowed behind, coarsely and closely punctured, with an elevated space along the middle, smooth. Elytra narrow, scarcely longer than the thorax, closely but distinctly punctured. Hind body elongate, less depressed than in *histrio*, its sculpture very similar to that of the elytra. Legs obscure red. Underside of head moderately closely punctured.

Four specimens in company with the preceding species.

70. *Philonthus* (*Cafus*, Thomson) *algarum*, n. sp. *P. sericeo* peraffinis. Elongatus, niger, opacus, cinereo-pubescentis, antennis pedibusque rufis, capite thoraceque utrinque crebre fortiter punctatis, elytris abdomineque creberrime subtilissimeque punctatis. Long. $2\frac{1}{3}$ lin.

This species is closely allied to our European *P. sericeus*; it is just the same size and form, it has the antennæ and legs rather paler in colour, the punctuation of head and thorax deeper and stronger, and that of the elytra not quite so dense.

Two specimens under seaweed at Nagasaki.

71. *Philonthus quediodes*, n. sp. Thorax, sine dorsali 3-punctato, juxta *P. montivagum* locandus. Niger, nitidus, antennis pedibusque testaceis, elytris suturâ late rufâ, abdomine segmentorum marginibus rufescentibus; oculis permagnis; pedibus intermediis leviter distantibus. Long. 4 lin.

This remarkable insect is, by the structure of its thorax and the discoidal punctures thereon, closely allied to *P. montivagus*, from which it differs, however, materially by the very large eyes, occupying the whole of the side of the head, and by the more widely separated middle coxæ. The antennæ are rather short and moderately stout, of a yellowish colour. The head has a few punctures quite at the hind angles, and two punctures placed obliquely, close together between the eye and the insertion of the antennæ, otherwise impunctate. Thorax nearly straight at the sides, but a little narrowed in front; the front angles deflexed and rounded, the punctures placed much as in *montivagus*. Scutellum finely and not very distinctly punctured. Elytra rather longer than the thorax, black, with a broad red patch at the suture, and the hind margin narrowly pale; they are sparingly and obsoletely punctured, and have each a row of four large discoidal punctures. The hind body is sparingly punctured. The legs are yellow.

A single specimen found in dung at Nagasaki on the 11th of April.

(This individual is, I think, a male, though it has the 7th abdominal segment beneath only slightly emarginate, the front tarsi are strongly dilated: the affinities of this insect with *Quedius* are quite remarkable; there is no stigmatic membrane to the prothorax.)

72. *Philonthus spinipes*, n. sp. (Sectio 3, Er.) Niger, elytris rufis; tibiis tarsisque testaceis, illis longius nigro-spinosis. Long. 7—7½ lin.

Mas, tarsis anticis dilatatis, abdomine segmento 7° ventrali apice exciso.

Fem., tarsis anticis leviter dilatatis.

Var., thorace serie dorsali 4-punctato.

This species resembles *P. nitidus*, but is larger and more robust, and is readily distinguished by the pale tibiæ, on which the long black spines are very conspicuous, more particularly those surrounding the apex of the four hinder tibiæ. The antennæ are not in the least thickened towards the extremity, and are entirely black. The hind angles of the head are largely and very coarsely punctured, and furnished with very long hairs. The thorax is black and shining, a little rounded, but not sinuate at the sides; sometimes with the discoidal punctures placed as in *P. æneus*, but generally with the third from the front entirely wanting. The elytra are red, and

are moderately closely punctured. The hind body only moderately closely punctured, but with its pubescence very marked. The middle coxæ are widely separated.

Abundant both at Hiogo and Nagasaki, in refuse.

I have this species also from Mantchuria.

73. *Philonthus japonicus*, n. sp. (*P. æneo* peraffinis). Niger, capite thoraceque nigro-æneis, elytris æneis, thorace lateribus subsinuato, utrinque leviter impresso; abdomine nigro-pubescente, crebre punctato. Long. 6 lin.

Mas, tarsis anticis fortiter dilatatis, abdomine segmento 6° ventrali margine apicali profundius emarginato, segmento 7° triangulariter exciso.

Closely allied to *P. æneus*, but undoubtedly distinct from it. It is of the size, form and colour of *æneus*, and the antennæ seem very similarly formed to those of that insect. It has, however, the black pubescence of the hind body similar in colour to that of *succicola*, the punctuation of the segments not quite so dense as in *æneus*; the transverse impressions on the 3rd and 4th segments are scarcely at all divided by the middle part of the base being produced; the front tarsi in the male are more strongly dilated, and the emargination of the 6th segment beneath is much deeper and more distinct than in *æneus*. From *P. succicola*, the very æneous colour of the elytra, and the strongly dilated front male tarsi, readily distinguish it.

Very local on the sandy shore at Simabara, April, 1870.

74. *Philonthus parvus*, n. sp. (Sec. 4, Er.) *P. vario* affinis. Niger, nitidulus, pedibus obscure rufis, tibiis piceo-rufis, elytris viridi-æneis parcius fortiter punctatis, capite suborbiculato. Long. 4½ lin.

Mas latet.

This species is allied to *P. varius*, but has the head much larger, and the thorax scarcely narrowed in front. It is narrower than *P. rectangulus*, and the discoidal series of the thorax consists of only four fine punctures. Antennæ pitchy, a little paler towards the extremity; the three or four penultimate joints a little transverse. Head slightly narrower than the thorax, rather broad in proportion to the width of the insect; its punctuation similar to that of *varius*, but the punctures larger. Thorax very shining black, quite as long as broad, slightly narrower towards the front; the punctures of the discoidal series

small. Scutellum rather closely punctured. Elytra about as long as the thorax, of a shining brassy colour, rather coarsely and sparingly punctured. Hind body moderately closely and finely punctured. Intermediate coxæ moderately distant.

A single female example only from Hiogo.

75. *Philonthus macies*, n. sp. (Sec. 4, Er.) *P. cephalotidi* affinis sed multo angustior. Elongatus, niger, nitidus, elytris nigro-æneis, elongatis, crebre distinctius punctatis; coxis intermediis distantibus. Long. $3\frac{1}{2}$ —4 lin.

Mas, abdomine segmento 7° ventrali apice exciso, tarsis anticis simplicibus.

Allied to *P. cephalotes*, but readily distinguished by its much narrower form, and by the more separated intermediate coxæ. The antennæ are black, rather slender; 2nd and 3rd joints subequal, 6—10 each a little shorter than its predecessor, the 10th hardly so long as broad. Head about as broad as the thorax, the disc impunctate, the hinder angles largely punctured and with four punctures between the eyes near the front, the middle ones separated by an impression. Thorax considerably narrower than the elytra, longer than broad; almost straight at the sides; its punctures large. Elytra longer than the thorax, moderately closely and rather deeply but not coarsely punctured. Hind body very black, only moderately closely punctured. Front femora at the extremity with five spines, the middle one elongate, the others smaller and finer.

Five specimens of this species have been taken by Mr. Lewis under seaweed at Nagasaki, possibly only an accidental occurrence.

76. *Philonthus germanus*, n. sp. (Sec. 4, Er.) *P. fimetario* affinis sed quadruplo minor. Niger, capite thoraceque ænescentibus, antennarum basi pedibusque flavis, his tibiis infuscatis, elytris æneo-fuscis; abdomine parcius punctato; femoribus anterioribus apice breviter 5-spinosis. Long. $2\frac{1}{2}$ —3 lin.

Mas latet.

Fem., tarsis anterioribus simplicibus.

This species, though distinct enough in its appearance, is in structure very closely allied to *P. fimetarius*, and the

punctuation of the two species is also very similar. The antennæ are shorter than in *fmctarius*, the basal joint is yellow, and joints 7—10 are distinctly transverse. The head is small, the thorax is rather shorter than in *fmctarius*, and a little narrowed towards the front. The middle coxæ are but little distant from one another, and the front femora have near the apex five or six stout spines placed close together.

The only two specimens I have seen of this species are, I believe, both females, and are not in good condition.

In rubbish heaps at Nagasaki.

77. *Philonthus rectangulus*, n. sp. (Sec. 5, Er.) Niger, nitidus, clytris nigro-aneis, pedibus piceo-testaceis, capite thoraceque subquadratis, abdomine segmentis 2—4 basi medio producto; coxis intermediis longe separatis. Long. 4—5 lin.

Maris tarsis anticis fortiter, feminae vix dilatatis.

Rather larger than the large specimens of *P. ebeninus*, broader and flatter, and with the head and thorax more quadrate than in that species; the punctures of the discoidal series on the thorax are rather irregular, and subject to some variation in number; and in these respects, as well as in one or two others, the species reminds one of *P. puella*. Antennæ short, not thickened towards the extremity; joints 4—10 each a little shorter than the preceding one; 4th rather longer than broad; 10th not quite so long as broad. Head large, subquadrate; in the male quite as broad as the thorax; in the female not quite so broad; the front behind the labrum is impressed in the middle; there are four large punctures in a line between the eyes, and some other large punctures near the hinder angles. Thorax nearly as broad as the clytra, about as long as broad, straight at the sides, and not, or scarcely, narrowed in front. Scutellum large, rather closely punctured. Elytra brassy black, shining, about as long as the thorax. Hind body only moderately closely punctured. Legs pitchy yellow. All the tibiæ spinulose; the intermediate coxæ widely separated.

Abundant in rubbish heaps at Nagasaki.

78. *Philonthus Lewisius*, n. sp. (Sec. 5, Er.) Elongatus, niger, clytris viridi-aneis, pedibus fusco-testaceis; capite thoraceque nigerrimis, nitidissimis; clytris fortiter

minus dense punctatis, tenuiter pubescentibus. Long. 5 lin.

Mas, tarsi anticis valde dilatatis, abdomine segmento 7^o ventrali late exciso.

This rather distinct species of *Philonthus* is an ally of *P. punctipennis*, Woll. ; it differs from that species in the following points of form, colour and sculpture. *P. Lewisius* is a rather broader insect, and its head and thorax are notably broader ; the antennæ are black, with the base and extremity sometimes rather paler ; the head and thorax extremely shining, and excessively black ; the elytra are brassy, and are more coarsely, but not so closely, punctured ; the legs are more infuscated ; the punctures of the discoidal series of the thorax are fewer in number.

Common at Nagasaki.

79. *Philonthus solidus*, n. sp. (Sec. 5, Er.) *P. scybalario* affinis. Niger, nitidus, pedibus testaceis, coxis anterioribus tibiisque infuscatis, elytris fusco-nigris margine apicali (interdumque suturâ) anguste flavescente ; abdomine obsolete versicolore. Long. 5 lin.

Mas, tarsi anterioribus vix dilatatis.

This species is rather larger than *P. scybalarius*, and is notably broader, and has the front tarsi but little dilated in the male. The antennæ are moderately long, blackish ; the basal joint generally paler, and sometimes the apical joints are obscurely paler ; all the joints are longer than broad. The head is narrower than the thorax ; this latter is much narrowed to the front. The elytra are about as long as the thorax, the hind margin narrowly, but distinctly, yellowish, and the suture often obscurely pale ; they are rather strongly punctured. The hind body is considerably narrowed towards the extremity ; it is rather strongly and moderately closely punctured ; it is obscurely iridescent on its upper side, and the segments on the under side have the hind margins reddish. The legs are yellowish, the tibiæ more or less infuscate, the front coxæ much darker than the femora. The middle coxæ rather widely separate.

Common at Nagasaki.

This species also occurs in Northern China.

80. *Philonthus mutans*, n. sp. (Sec. 5, Er.) *P. varianti* affinis. Niger, nitidus, elytris fusco-nigris, capite ovato,

pedibus sordide testaceis, abdominis segmentorum ventralium marginibus rufescentibus. Long. $3\frac{1}{2}$ lin.

This species is very closely allied to *P. varians*, but differs from it as follows. It is rather larger, decidedly broader, and less attenuate in front and behind. The colour of the legs is paler, and the segments of the hind body have their hind margins reddish on the under side. The joints of the antennæ are considerably stouter, the individual joints not being so narrow at the base as in *varians*.

In the male the front tarsi are very strongly dilated.

This species occurs in Northern China; though only a single female specimen from Japan is extant in Mr. Lewis's collection, it is probably common there.

81. *Philonthus agilis*, Grav. Three specimens appear to agree with the description of the European *P. agilis*; they are readily distinguished from *varians* or *mutans* by the much less dilated tarsi of the male.

82. *Philonthus scybalarius*, Nord. A number of specimens must be assigned to this species, at any rate for the present. But it appears to me that either *P. scybalarius* is a very variable insect, or that more than one species is confounded under the name.

In hay refuse at Nagasaki, common.

83. *P. quisquiliarus*, Gyll. One specimen.

Var. *rubidus*, Er. Two specimens. At Orakami Marsh.

84. *P. thermarum*, Aubé. In the absence of sufficient material, I consider it well to place three specimens found by Mr. Lewis in Japan as this species: they differ from Egyptian specimens by having a deep channel along the front of the head; they are discrepant from one another in colour. An individual from Northern China shows no trace of the channel on the head.

85. *Philonthus egens*, n. sp. (Sec. 6, Er.) Niger, antennarum basi pedibusque testaceis, elytris (minus late) rufis parce punctatis, abdominis segmentorum marginibus ferrugineis. Long. 3 lin.

Mas, tarsi anticis simplicibus, abdomine segmento 7° ventrali apice late minus profunde exciso.

This species is, both in structure and sculpture, allied to *P. nigritulus*, but it is larger and differently coloured. The moderately long antennæ are black, with the two or three basal joints yellow; they are distinctly thickened towards the extremity; 3rd joint slightly shorter than 2nd, joints 6—10 transverse. Head with the punctuation similar to that of *P. nigritulus*; maxillary palpi much longer and more slender than in *nigritulus*, their last joint elongate, slender, and very pointed. Thorax narrower than the elytra, longer than broad, nearly straight at the sides, and scarcely at all narrower to the front, its punctures deep and rather large. Elytra slightly longer than the thorax, of a reddish colour, the suture sometimes infuscate, sparingly and not strongly punctured. Hind body broad, rather sparingly punctured, the hind margins of the segments reddish. Legs (including the coxæ) yellow, tibiæ a little infuscate. The front tarsi quite simple in the male.

Four specimens. Hiogo.

86. *Philonthus sericans*, n. sp. (Sec. 6, Er.) *P. micanti* affinis. Piceus, antennarum basi pedibusque testaceis, capite orbiculato thoraceque sericeo-micantibus; elytris crebre punctatis; abdomine confertim punctato, segmentorum marginibus posterioribus ferrugineis. Long. 3 lin.

Mas, tarsis anticis leviter dilatatis.

Allied to *P. micans*, but paler in its colour, and with head, thorax and antennæ less elongate. The antennæ are pitchy or pitchy yellow, with the base paler, 2nd and 3rd joints subequal, the penultimate joints quadrate. Head black or pitchy black, a little narrower than the thorax, orbiculate, punctured as in *P. micans*. Thorax narrower than the elytra, pitchy, or reddish pitchy, a little narrowed to the front, and about as long as broad, its punctures similar to those of *micans*; it, as well as the head, has in certain lights a silky reflection caused by a number of extremely fine undulating grooves. Elytra pitchy, a little shining, a little longer than the thorax, finely and rather closely punctured. Hind body densely and finely punctured, the hind margins of the segments paler. The legs, including the anterior coxæ, are yellow, the middle coxæ not contiguous.

Common at Nagasaki, in garden refuse.

87. *Philonthus amicus*, n. sp. (Sec. 6, Er.) *P. micanti* affinis. Elongatus, niger, thorace piceo, pedibus testaceis,

antennarum basi piceo-testaceo; abdomine dense punctato, opaco. Long. $3\frac{1}{2}$ lin.

Mas latet.

This species is closely allied to *P. micans*, and differs as follows. The basal joints of the antennæ are paler, and the penultimate joints are shorter. The thorax is pitchy and not black in colour. The elytra are smoky rather than black in colour, and the suture is even a little reddish, and the legs are less infuscate. From *P. sericans* its more elongate form, its longer antennæ, and densely punctured, opaque, black hind body readily distinguish it. The head appears to have no silky reflection, and that of the thorax is only slight.

A single female specimen, from Orakami Marsh, Nagasaki.

88. *Philonthus prolatus*, n. sp. (Sec. 7, Er.) Elongatus, depressus, niger, elytris nigro-æneis subtiliter punctatis; pedibus piceis, antennis articulo ultimo ferrugineo; abdomine crebre punctato, segmentis anterioribus, basi transversim depresso. Long. $3\frac{1}{2}$ —4 lin.

Mas, tarsi anterioribus fortiter dilatatis.

Similar in form to *P. astutus*, but much larger, and with an additional puncture (or more) in the thoracic series. The antennæ are elongate and slender, rather longer than head and thorax, black, pitchy at the base, the terminal joint a little paler, the 3rd joint longer than 2nd, the 10th much longer than broad. Head narrow, slightly narrower than the thorax, very black and shining, a large space in the middle impunctate, the hind angles much punctured. Thorax narrower than the elytra, longer than broad, straight at the sides and scarcely narrowed in front, very black and shining, the discoidal series of punctures rather irregular, 7 or 8 in number, the punctures rather large. Elytra larger than the thorax; brassy black, rather finely and not densely punctured, distinctly shining. Hind body elongate, black, each of the segments at the base closely and rather strongly, at the extremity more sparingly and finely punctured, segments 2—4 strongly transversely impressed at the base. Legs pitchy, or pitchy red, the tarsi elongate and paler.

In garden refuse at Nagasaki.

89. *Philonthus Kobensis*, n. sp. (Sec. 7, Er.) Niger, nitidus, antennarum basi pedibusque testaceis, coxis anticis

piceis, elytrorum abdominisque basibus fulvo-testaceis; prothoracis serie dorsali fortiter (7 vel 8) punctato, elytris fortiter sat crebre punctatis. Long. $3\frac{1}{2}$ lin.

Mas latet.

An elegant and distinct species. Antennæ rather short and stout, distinctly thickened towards the extremity, pitchy black, the two or three basal joints yellowish; 3rd joint rather longer than 2nd, 6—10 transverse, the first of them slightly, the last of them strongly so. Maxillary palpi yellow, their last joint slender and elongate, not subulate. Head narrower than the thorax, oblong-orbiculate, with large punctures scattered over it, leaving a small space in the middle free; it is black and shining, and has an impression in front. The thorax is narrower than the elytra, and is distinctly narrowed towards the front; it has on each side the middle a row of seven or eight large punctures, outside this another row of four or five, and outside this still other two or three punctures. The scutellum is black, punctured. The elytra are shining, their base is tawny yellow; this colour extends backwards along the suture and epipleuræ; their punctuation is deep but not close. The hind body is yellowish at the base, each segment infusate at its base, the apical segments entirely black; its punctuation is rather sparing, and moderately strong. The legs are bright yellow, the coxæ blackish; the hinder pair of femora only feebly spined.

Kobé, a single female specimen.

90. *Philonthus rutiliventris*, n. sp. (Sec. 8, Er.) Niger, pedibus piceo-testaceis; abdomine apicem versus attenuato, metallico-versicolore. Long. $4\frac{1}{2}$ — $5\frac{1}{2}$ lin.

Mas, tarsi anticis simplicibus.

Antennæ rather long, not thickened towards the extremity, rather slender, black; 3rd joint longer than 2nd, all the joints longer than broad, 11th about as long as the 10th. Palpi yellowish, last joint very slender and elongate. Head narrower than the thorax, short and broad, black, with many punctures on each side of the inner margin of the eyes; a broad space along the middle, smooth. Thorax broad, rather narrower than the elytra, about as long as broad, distinctly narrowed towards the front, evenly covered with rather coarse, and distantly-placed punctures, except a broad space along the middle, which is smooth; it is quite

black, moderately shining. Scutellum large, its punctuation similar to that of the elytra. Elytra about as long as the thorax, rather closely and finely but distinctly punctured, rendered dull by their distinct pubescence. Hind body distinctly narrowed towards the extremity, with strongly metallic reflections; on the apical segments this lustre is fiery and very changeable; it is above rather sparingly punctured, with rigid suberect hairs or pubescence, on the underside the apical segment is reddish. The legs are pitchy yellow, the anterior coxæ pitchy, the middle ones contiguous. Common in heaps of dry rubbish at Nagasaki.

This species occurs also in Eastern Siberia, Lake Baikal. In China occurs an allied species (*micantiventris*, Sharp in lit.) with much more sparingly punctured head and thorax.

91. *Philonthus gastralis*, n. sp. (Sec. 8, Er.) Capite thoraceque nigris, leviter metallescentibus, elytris fusco-brunneis, pedibus testaceis; abdomine apicem versus attenuato, metallico-versicolore. Long. 4 lin.

Mas, tarsi anticis simplicibus.

Allied to the *P. rutiliventris*, but smaller, and distinguished at a glance by the paler elytra and legs. The antennæ are rather long, the basal joint, and often the apical one or two, paler than the others; all the joints longer than broad, 3rd a little longer than 2nd. Head about as broad as the thorax, broad and short, much punctured between the eyes, but with a broad space in the middle smooth, this space bounded in front on each side by three or four punctures placed in a row. Thorax narrower than the elytra, quite as long as broad, straight at the sides, and not narrowed towards the front, coarsely punctured, with a smooth space along the middle; it (as also the head) has a distinct metallic lustre. The elytra are longer than the thorax, and are of an obscure-brownish colour, often much infuscated at the base, and always brighter towards the extremity. The hind body is very strongly metallic, and is rather sparingly and coarsely punctured. The legs are yellow, the anterior coxæ more or less infuscate, the middle ones scarcely separated.

In the male the front tarsi are quite simple, and the 7th abdominal segment has only a slight emargination in the middle beneath.

Found together with the *P. rutiliventris*.

92. *Philonthus tiro*, n. sp. (Sec. 8, Er.) Niger, antennis articulis ultimis tribus albidis, capite thoraceque nitidis, nigerrimis, fortiter punctatis, hoc areâ medio lævi, elytris rufo-fulvis, versus apicem infuscatis; abdomine versicolore apicem versus attenuato, segmento 6^o rufescente; tibiis testaceis, coxis intermediis sat distantibus. Long. 5—6 lin.

Mas, tarsis anticis valde dilatatis, abdomine segmento 7^o ventrali sat profunde exciso.

Antennæ quite as long as head and thorax, 2nd and 3rd joints red at the base, 9—11 white, the rest blackish; 3rd joint much longer than 2nd, 10th longer than broad. Head as broad as the thorax, suborbiculate, the whole of the vertex and temples closely and coarsely punctured, the disc and front smooth, the eyes not reaching half-way to the neck, the palpi reddish, slender and elongate. Thorax about two-thirds the width of the elytra, longer than broad, nearly straight at the sides (when seen from above); rather sparingly and coarsely punctured, with a broad medial longitudinal space smooth. Scutellum smoky, densely punctured. Elytra scarcely longer than the thorax, of a tawny-red colour, a little infuscate before the hinder angle, the punctuation moderately close and fine. Hind body considerably narrowed behind, black, the 6th segment and the extreme base of the 7th reddish; the others black, distinctly iridescent, rather strongly and closely punctured, the pubescence and setæ well marked. Femora blackish, tibiæ and tarsi yellow, the latter elongate and slender.

Copper Temple, Nagasaki, under dead leaves in the month of May.

93. *Philonthus pumilus*, n. sp. (Sec. 8, Er.) *P. prolixo* peraffinis. Elongatus, niger, antennis pedibusque testaceis, elytris læte rufis. Long. 2 $\frac{1}{3}$ lin.

This species is extremely closely allied to *P. prolixus*, but the antennæ and legs are paler in colour; the joints of the former are a little stouter, and the elytra are entirely of a bright-red colour, with their punctuation a little finer and more remote.

Two specimens, found in a sandy pit at Osaka.

94. *Othius rufipennis*, n. sp. Elongatus, angustus, niger, elytris læte rufis, antennis obscure-, pedibus piceo-rufis. Long. 5—6 lin.

Mas, abdomine segmentis 4° 5°que, subtus medio maculâ minutâ dense pubescente.

This species is about the size of, and somewhat resembles *O. fulvipennis*; it is however more slenderly formed, has a narrower head, and longer and more closely punctured elytra. Antennæ pitchy red at the base, paler towards the extremity; 3rd joint much longer than 2nd, 4th to 10th each shorter but scarcely broader than its predecessor, the 10th about as long as broad. The head is black, elongate and narrower, not at all broader near the hind angles; the sides behind the eyes, as also the vertex, are strongly and rather closely punctured; the front part impunctate, except for a pair of punctures between the eyes, and in front of these three or four punctures, indistinct by being placed in or near the deeper hind part of the obscure frontal grooves. Thorax black and shining, slightly narrower than the elytra, nearly straight at the sides, almost impunctate except at the margins; scutellum black, impunctate (or nearly so). Elytra about as long as the thorax, bright red, rather finely, and moderately closely punctured. The hind body is dull black, and is rather closely and distinctly punctured. The legs are pitchy red, the tarsi paler.

In the male the front tarsi are more strongly dilated than in the female, and the fourth and fifth segments of the hind body have each on the underside a very small patch of dense fine pubescence in the middle.

Orakami Marsh. Rare.

95. *Othius medius*, n. sp. Elongatus, piceo-niger, antennis obscure rufis, elytris thorace brevioribus, obscure vel infuscato-rufis, subopacis; pedibus testaceis. Long. 7 lin.

Mas, abdomine segmentis ventralibus 4 et 5, areâ mediâ densius pubescente.

Antennæ reddish, brighter at the base than at the extremity; 3rd joint much longer than 2nd, 4—10 each a little shorter than its predecessor, 10th about as long as broad. Palpi and mandibles reddish. Head rather large, narrower than the thorax, slightly narrowed from the hind angles to the front, at the sides sparingly but coarsely punctured. Thorax much longer than broad, quite as broad as the elytra, nearly straight at the sides and not narrowed behind, black, shining, and impunctate, except for a few punctures at the margins, and one on

each side near the front. Scutellum impunctate. Elytra not much more than three-fourths the length of the thorax; their ground colour is an obscure red, but they are so much infuscate, as to leave only the margins reddish, but their colour is variable; they are distinctly and rather roughly, but not coarsely or closely punctured, and are but little shining. Hind body rather coarsely and closely punctured. Legs yellow. Beneath, the insect is of a paler colour than above.

The eight individuals of this species I have examined vary considerably in the colour of the elytra: from dull reddish to nearly or quite black.

Hiogo and Nagasaki. Common.

96. *Othius latus*, n. sp. Elongatus, latior, niger, antennis obscure rufescentibus, pedibus rufis; thorace basin versus angustato, elytris hoc paulo brevioribus, fortiter punctatis, nitidulis. Long. 7 lin.

Readily distinguished from *O. medius* by its broader form and less opaque but more strongly punctured elytra. Antennæ rather stout, dull reddish, or even pitchy red, with the basal joints a little paler; joints 7—10 differing but little from one another, each scarcely so long as broad. Palpi red. Head rather broad, just a little narrower than the thorax, distinctly narrowed towards the front, shining black, coarsely and sparingly punctured, with a space along the middle impunctate. Thorax longer than broad, a little broader in front than at the base, its width in front equal to that of the elytra; it is black, shining, and impunctate, with the exception of a few punctures at the margins and near the front angles. Elytra a little shorter than the thorax, black or pitchy black, strongly but not closely punctured, and distinctly shining. Hind body rather strongly and closely punctured. Legs reddish-yellow.

Two females from Copper Temple, Nagasaki, are all I have seen of this insect; but Mr. Lewis has sent me from Northern China a specimen of a male *Othius*, which, though rather smaller and narrower than the individuals above described, pertains I have no doubt to the same species; it has the middle of the sixth segment of the hind body beneath longitudinally flattened or depressed, densely punctured and pubescent, the hind margin a little emarginate. The seventh segment is in the middle to-

wards the extremity more finely punctured, and more densely pubescent than at the sides, and has the hind margin slightly emarginate.

97. *Xantholinus japonicus*, n. sp. Niger, elytris pallidis, circa scutellum infuscatis, parcius disperse punctatis; antennis pedibusque piceis; prothorace serie dorsali 8, serie laterali circiter 9, punctatis; capite fortiter punctato. Long. 5—5½ lin.

Smaller than *X. glabratus*, with pallid elytra, and large and deep punctures on the head and thorax. The antennæ are rather short and stout, pitchy or pitchy red; 2nd and 3rd joints sub-equal, 4—10 transverse. Head and thorax very black and shining, the former large, nearly or quite as broad as the thorax, a little narrowed towards the front, covered, except along the middle, with coarse and numerous, but not dense punctures. Thorax much longer than broad, distinctly narrower behind than in front: its width in front nearly or quite as great as that of the elytra; on each side the middle it has a dorsal series of about eight large punctures, and outside this a curved series of eight or nine punctures, and also a few scattered punctures near the front. Scutellum black, impunctate, but distinctly covered with fine wavy lines. Elytra a little shorter than the thorax, pale yellow, pitchy black on each side the scutellum, and with this colour sometimes extending along the suture; they are rather sparingly punctured with moderately large and distinct punctures. Hind body quite black, sparingly punctured. The legs are pitchy. Underside of head strongly punctured except at the hinder part.

In sandy districts. Simabara and Hiogo.

98. *Xantholinus suffusus*, n. sp. Nigro-æneus, antennis piceis, pedibus obscure rufis, elytris piceo-testaceis, suturâ apiceque dilutioribus, thorace fere longioribus, fortiter punctatis; capite fortiter punctato; thorace serie dorsali 8 vel 9 punctato, serie laterali irregulari 6—9 punctato. Long. 4—5 lin.

Smaller than *X. japonicus*, and tinged with a brassy colour; the elytra longer, darker in colour, and more strongly punctured. Antennæ rather short and stout, pitchy or pitchy red; 3rd joint a little shorter than 2nd, 4—10 transverse. Head shining brassy black, quite as

broad as the thorax, coarsely but not densely punctured, with an impunctate space along the middle; in front in the middle, between the frontal channels, is a short obscure channel, and the space here is finely strigose, so as to be less shining than the other parts. Thorax narrower than the elytra, shining brassy black, with a dorsal series of about eight punctures, and with an irregular curved lateral series of about the same number, and with some additional punctures near the front. Elytra quite as long as, or even a little longer than, the thorax, of a yellow colour, but more or less suffused with a dark colour, so as to be sometimes almost entirely pitchy, generally with the suture and extremity broadly pale yellow; they are coarsely and moderately closely punctured. Hind body tinged with brassy, sparingly punctured; legs reddish. Under side of head rather coarsely, sparingly and regularly punctured, and finely strigulose so as to be made somewhat dull. Prosternum and margins of thorax dark red.

Abundant at Nagasaki.

99. *Xantholinus mixtus*, n. sp. Nigro-æneus, nitidus, elytris æneo-piceis, fortiter punctatis; antennis obscure rufis, pedibus rufis; capite punctato, punctis e majoribus et minoribus compositis, thorace serie dorsali circiter 9, laterali circiter 7, punctatis. Long. 4 lin.

Closely allied to *X. suffusus*, but rather narrower, with the elytra more unicolorous, but easily distinguished by the sculpture of the head. The large punctures of the head are much smaller and are less numerous than in *suffusus*, and mixed with them are a number of much finer punctures; these fine punctures however are wanting at the hinder part, and they appear to vary in their number, but are always most numerous about the frontal furrows: the head on the under side has some scattered large punctures, as well as a large number of small punctures similar to those of the upper surface.

Abundant at Nagasaki.

In certain specimens (probably males) of this and of *X. suffusus*, the middle lobe of the 8th segment of the hind body is depressed along the middle and has each of its hinder angles a little produced.

100. *Xantholinus pleuralis*, n. sp. Niger, antennis pedibusque rufis, elytris piceis margine dilutioribus; capite

parcius fortiter punctatis; thorace serie dorsali circiter 9 punctato. Long. $3\frac{1}{2}$ lin.

Allied to *X. hesperius*, but with shorter limbs, coarser punctuation, and shorter and broader thorax. Antennæ short and stout, red; 3rd joint slightly shorter than 2nd, 5th evidently broader than 4th, 5—10 transverse. Head nearly as broad as the thorax, a little narrowed towards the front, shining black; at the sides sparingly but coarsely punctured. Thorax about as broad as the elytra, very slightly narrowed behind, with a dorsal series of about 9 rather large punctures, with a curved lateral series, and with some other punctures near the front angles. Elytra a little longer than the thorax, pitchy with the margins paler, moderately finely punctured, the punctures distinctly with a tendency to linear arrangement. Hind body rather coarsely punctured. Legs red.

Nagasaki; three specimens.

101. *Leptacinus flavipennis*, Kr. Rare in rubbish heaps at Nagasaki.

102. *Xanthophyus* (?) *angustus*, n. sp. Rufo-testaceus, nitidus, capite nigro, disperse punctato, abdomine apice nigricante. Long. fere 2 lin.

Antennæ reddish-yellow, a little thickened towards the extremity; 2nd joint short, but nearly twice as long as the small third joint, 4th joint small, about as long as broad; from this to the 10th the joints are each of about similar length, and each just a little broader than its predecessor, so that 6—10 are transverse; 11th joint obtusely pointed, about as long as the two preceding together. Head black, with the mandibles and palpi reddish; it is narrow, elongate and parallel, it is distinctly but not very coarsely, sparingly punctured, the middle part impunctate. Thorax much longer than broad, narrower than the elytra, distinctly narrowed behind; it has on each side the middle a series of about 10 punctures, and outside these numerous other punctures; it is of a pale, transparent, reddish-yellow colour. Elytra about as long as the thorax, of a yellowish colour but somewhat infuscate, finely, sparingly and indistinctly punctured. Hind body yellowish, with the segments on the upper side infuscate in the middle, the two terminal ones pitchy black, its punctuation is very sparing and indistinct. Legs yellow, metasternum infuscate; underside

of the head sparingly furnished with rather large punctures.

Found once in great numbers in large fungi, growing on fir trees at Hiogo, October 2nd, 1870.

Though I have not been able to consult Motschoulsky's description of the genus *Xanthophyus*, I possess a specimen of his *X. serpentarius* received by Mr. Janson from Motschoulsky himself, and I have no doubt it is congeneric with the insect here described. The more important of the generic characters of *X. angustus* are these. External frontal furrows of head obsolete, middle ones distinct and moderately long; last joint of maxillary palpi subulate, much shorter than the preceding joint; upper marginal line of thorax wanting, except at the base; middle coxæ moderately distant.

103. *Lathrobium digne*, n. sp. Alatum, subdepressum, nigrum, nitidum, antennis elytrisque rufis, pedibus testaceis; thorace oblongo, fortiter punctato, elytris hoc longioribus subtilius punctatis. Long. 4—4½ lin.

Mas, abdomine segmentis ventralibus 6 et 7 medio longitudinaliter impressis, hoc apice profundius triangulariter exciso, emarginationis margine densius nigro-setoso.

Var. ? Elytris nigris.

Rather closely allied to *L. fulvipenne*, but with the clytra longer and brighter red. The antennæ, and head and thorax, are very similarly formed to the same parts of *fulvipenne*; the punctuation of head and thorax is a little coarser than in *fulvipenne*. The elytra are just a little longer than the thorax, bright red, a little infuscated about the scutellum, moderately sparingly and finely punctured.

The legs are yellow.

The male has a deep triangular notch at the extremity of the 7th segment beneath; each side of this notch projects backwards, forming an acute angle, and the margin of the notch is very densely set with black pubescence; both the 6th and 7th segments are distinctly impressed along the middle.

Five specimens: at Tango and Hiogo, in sandy places.

The variety alluded to will perhaps prove to be the representative of a distinct species, but as I have only seen a single female individual of it in bad condition, I cannot speak positively.

104. *Lathrobium nudum*, n. sp. (*L. multipunctato* affinis). Nigrum, nitidum, clytris fortiter, profundius

seriato-punctatis, apice anguste testaceis, antennis pedibusque rufis. Long. 3—3½ lin.

Mas, abdomine segmento 6° ventrali medio lævi, basin versus lineis (vel tuberculis) duobus brevioribus elevatis; 7° anguste profundius exciso, medio canaliculâ profundâ lævigatâ.

This species is rather closely allied to *L. multipunctatum*, but is differently coloured. Antennæ red, formed as in *L. multipunctatum*, but with the joints shorter. Mandibles and palpi red. Head broad and short, shining black, coarsely and moderately closely punctured, the punctures on the middle part more sparing or wanting. Thorax narrower than the elytra, shining black, coarsely and moderately closely punctured, with a broad line along the middle impunctate. Elytra longer than the thorax, pitchy black, with a yellow blotch on each at the extremity, closely and very coarsely punctured, the punctures distinctly but rather irregularly arranged in rows. Hind body slender, closely and moderately finely punctured. Legs red.

Nagasaki; not very rare.

105. *Lathrobium partitum*, n. sp. (*L. multipunctato* affinis). Nigrum, nitidum, clytris basi chalybeo-nigris, dimidio apicali testaceo, fortiter seriato-punctatis; antennis obscure rufis, pedibus piceis, tarsis rufescentibus.

Mas, abdomine segmentis ventralibus 5 et 6 medio impressis, hoc margine posteriore emarginato; 7° apice angustius exciso, medio longitudinaliter impresso, impressione basi nigro-asperato.

Antennæ pitchy red at the base, red at the extremity, formed as in *multipunctatum*. Head about as broad as the thorax, black and shining, coarsely and moderately closely punctured, across the middle a space where the punctures are more sparing or wanting. Thorax narrower than the elytra, very black and shining, coarsely and not closely punctured, with a broad line along the middle impunctate. Elytra slightly longer than the thorax, the basal half blue black, the apical half bright yellow, the two colours abruptly divided; they are very coarsely punctured, the punctures distinctly but rather irregularly arranged in rows, and not so dense on the yellow as on the blue part. Hind body very black, closely and rather finely punctured. Legs pitchy, the tibiæ rather paler than the femora, the tarsi reddish.

Very local; under tidal refuse, Nagasaki harbour.

Mr. Lewis has sent me also an example of a closely-allied but distinct species from Kiu Kiang.

106. *Lathrobium anguinum*, n. sp. Depressum, piceofulvum, elytris pedibusque dilutioribus; capite dense punctato, opaco, medio impunctato; elytris thoracis longitudine fortiter punctatis, nitidulis. Long $4\frac{1}{2}$ lin.

Mas latet.

Allied to *L. angusticolle*, but differently coloured, narrower, and with shorter elytra. Antennæ dull red, rather long and slender; 3rd joint much longer than 2nd, 10th twice as long as broad. Head rather broader than the thorax, of a dull-reddish colour, densely and rather finely punctured, with an impunctate shining space in the middle. Thorax narrower than the elytra, longer than broad, a little narrowed behind, similar in colour to the head, but shining, strongly but not densely punctured, with an impunctate line along the middle. Elytra narrow, a little contracted at the shoulders, about as long, but paler in colour than the thorax, lighter at the extremity than at the base, coarsely and rather densely punctured, but shining. Hind body opaque, densely and finely punctured. Legs yellow.

A single female individual, from Tango, on the north-west coast of Nipon.

107. *Lathrobium Kobense*, n. sp. (affinis *L. labili*). Angustum, nigrum, nitidum, antennis, pedibus, elytris apicem versus rufis; prothorace punctato, medio lineâ latâ impunctatâ; elytris hoc longioribus, striato-punctatis. Long. 2 lin.

Antennæ long and slender, not thickened outwardly, red; 3rd joint longer than 2nd, 4th—10th each a little shorter than its predecessor. Head broader than the thorax, oblong, rather coarsely but not densely punctured, the punctures on the middle more widely separated than at the sides. Thorax much narrower than the elytra, straight at the sides, about twice as long as broad, with a broad impunctate space along the middle, bounded on each side by a row of closely-placed punctures, the sides outside this line also punctured. Elytra longer than the thorax, reddish, but much infuscate, except towards the extremity, each with several rows of punctures; the punctures finer

and more irregularly placed towards the extremity. Hind body distinctly broader towards the extremity. Legs yellow.

Kobé; two specimens.

108. *Lathrobium scabripenne*, n. sp. Angustum, rufescens, capite elytrisq̄ue infuscatis, illo dense punctato, subopaco; prothorace crebre obsoletius punctato, medio lineâ impunctatâ; clytris prothorace longioribus, crebre asperato-punctatis. Long. 2—2½ lin.

Rather variable in colour, the antennæ and thorax reddish, and the elytra, head, and hind body of a similar colour, but more or less infuscated. Antennæ rather stout, 3rd joint scarcely shorter than 2nd, 4—10 differing little from one another, each rather longer than broad. Mandibles and palpi red. Head slightly broader than the thorax, entirely covered with a close and rather coarse punctuation. Thorax narrower than the elytra, nearly straight at the sides, not twice as long as broad, covered with a close but obsolete punctuation, but with a narrow line along the middle, smooth. Elytra longer than the thorax, closely punctured, with a peculiar rough punctuation. Hind body a little narrowed at the base, very densely and finely punctured. Legs yellow.

The male has on the underside an extremely small notch in the middle of the hind margin of the 7th abdominal segment.

Flying in the dusk at Nagasaki, March 7th.

109. *Lathrobium stilicoides*, n. sp. Nigrum, opacum, clytris fusco-æneis, thorace longioribus, hoc dense subtiliter ruguloso-punctato; antennis obscure rufis, pedibus sordide testaceis. Long. 3½ lin.

Mas latet.

Allied to *L. scabricolle*, but with much longer elytra. Antennæ stout, dull red, with the middle joints dusky; 3rd joint longer than 2nd, 10th longer than broad. Head rather narrower than in *scabricolle*, and with its punctuation very similar, but just a little denser and finer. Thorax much narrower than the elytra, longer than broad, much narrower towards the front, very densely and finely rugosely punctured; very opaque. Elytra slightly longer than the thorax, tinged with a brassy colour, finely and rather densely punctured. Hind body very little narrowed

at the base, densely and finely punctured. Legs pale sordid yellow.

A single female individual, from Mitzuyama, Nagasaki.

110. *Lathrobium crassicorne*, n. sp. Nigrum, capite thoraceque opacis, fortiter ruguloso-punctatis; antennis picco-rufis, pedibus rufis, clytris æneis, thoracis longitudine. Long. 5 lin.

Mas latet.

Allied to *L. stilicoides*, but twice the size, much stouter and more coarsely sculptured. Antennæ very stout, dark red, pitchy red at the base, the terminal half of the 11th joint paler than the rest. Head broader than the thorax, densely rugosely punctured. Thorax rather longer than broad, the front angles entirely rounded; it is a little narrowed behind; it is coarsely and densely rugosely punctured. Elytra about as long as the thorax, of a brassy colour, closely and finely punctured. Hind body very densely and finely punctured, a little narrowed at the base. Legs red.

A single female individual, from Maiyasama, Hiogo, July, 1871.

111. *Cryptobium apicatum*, n. sp. Nigrum, punctatissimum, subopacum, antennis pedibusque testaceis, clytris apice summo rufescente. Long. $4\frac{1}{4}$ lin.

Mas, abdomine segmentis ventralibus 3 et 4 medio lineâ elevatâ transversâ pube brevi vestitâ, 6° basi foveâ magnâ setigerâ, 7° apice profundius triangulariter exciso.

This species is remarkable from its very dense and coarse punctuation. Antennæ yellow, rather shorter than head and thorax, 10th joint longer than broad. Palpi yellow, mandibles dark red. Head large, oblong, a little broader than the thorax, coarsely and very densely punctured, the hind angles rounded, the eyes prominent. Thorax narrower than the elytra, much longer than broad, a little rounded at the sides, and just a little narrowed behind; it is very coarsely and closely punctured, but is nevertheless distinctly shining, the punctures leave only a very narrow space along the middle impunctate. Elytra scarcely longer than the thorax, coarsely, deeply and densely punctured, black, with the extremity rufescent. Hind body black, closely and finely punctured. Legs pale

yellow, coxæ pitchy yellow. Under side of head coarsely and moderately closely punctured, distinctly shining.

A mountain species, found under stones on Mitzuyama, Nagasaki.

112. *Cryptobium pectorale*, n. sp. Subcylindricum, fortiter punctatum, nigrum, elytris læte rufis, pedibus albidis, antennis pectoreque rufis. Long. $3\frac{1}{4}$ —4 lin.

Mas, abdomine segmentis ventralibus 3 et 4 medio lineâ transversâ pube brevi erectâ, 6° medio profunde longitudinaliter impresso, apice exciso, 7° profundius triangulariter exciso.

Antennæ slightly shorter than head and thorax, reddish-yellow, 10th joint longer than broad. Mandibles and palpi red. Head elongate and narrow, about as broad as the thorax, the hind angles rounded, the eyes prominent; it is dull, being entirely covered with coarse punctures. Thorax much narrower than the elytra, cylindric, the sides but little rounded; it is black and shining, coarsely punctured with a broad impunctate line along the middle. Elytra slightly longer than the thorax, bright red, the extreme base blackish, this colour sometimes extending along the suture; they are deeply and coarsely punctured. Hind body black, finely and moderately closely punctured. Legs very pale yellow, the coxæ reddish. The meso- and meta-sterna red.

Common in marshes at Hiogo and Nagasaki.

113. *Cryptobium japonicum*, n. sp. Nigrum, nitidum, pedibus sordide testaceis, antennis rufis, articulis intermediis infuscatis; elytris thorace brevioribus, crebre fortiter ruguloso-punctatis, subopacis. Long. $4\frac{1}{2}$ —5 lin.

Mas, abdomine segmento 7° ventrali apice latius minus profunde triangulariter exciso.

Antennæ shorter than head and thorax, reddish, joints 3—6 darker in the middle, 3rd joint longer than 2nd, 10th about as long as broad. Palpi yellow. Head oblong, about as broad as the thorax, shining black, very coarsely and rather closely punctured, the punctures wanting towards the front, the space between the antennal elevations less shining because finely strigose. Thorax about as broad as the elytra, longer than broad, straight at the sides, shining black, coarsely but only moderately closely punctured, and with a broad space along the middle

smooth. Scutellum almost impunctate. Elytra a little shorter than the thorax, densely and coarsely punctured. Hind body rather coarsely and closely punctured. Legs yellow, the coxæ infuscate; under side of head opaque, because of a fine, dense indistinct sculpture; besides this, with some rather large widely separated punctures.

I have seen but two specimens and some fragments of this species; but, besides, there is another individual which I believe will prove to be the representative of a closely allied but distinct species: it is smaller, has the joints of the antennæ shorter, and unspotted; as it is a female and very closely allied to the preceding species, I will leave its description till other specimens are found.

114. *Stilicus ceylanensis*, Kr. A common and variable species.

115. *Stilicus rufescens*, n. sp. Opacus, rufescens, pedibus elytrorumque apice testaceis, abdomine piceo; elytris crebre subtiliter punctatis, disco punctis majoribus adjectis. Long. 2 lin.

Allied to *S. ceylanensis*, but redder in colour, with the elytra more distinctly punctured and less shining, and with a number of additional large punctures on the disc of each. The elytra also are distinctly longer in proportion to their width than they are in *ceylanensis*. In other respects it seems to be very similar indeed to the *ceylanensis*.

Common.

116. *Scopæus complex*, n. sp. Rufo-testaceus, capite elytrisque paulo obscurioribus, dense subtilissime punctulata; prothorace basi minus distincte bi-impresso, elytris hoc paulo longioribus. Long. $1\frac{2}{3}$ lin.

Mas, abdomine segmento 6° ventrali latius profundiusque impresso, apice profunde exciso, excisionis lateribus densius breviterque nigro-setosis; segmento 7° fere simplice.

Antennæ rather long and stout, reddish, 3rd joint about as long as 2nd, a little longer than the 4th. Head rather long, quite as broad as the thorax, the base truncate; it is of a dull-reddish colour, generally a little darker in colour than the other parts, extremely finely and densely punc-

tured. Thorax rather longer than broad, nearly as broad as the elytra, the sides a little rounded, and very slightly narrowed behind; it is of a reddish-yellow colour, very finely and obsoletely punctured; the base in the middle is very slightly elevated, and indistinctly impressed on each side of the elevation. The elytra are a little longer than the thorax, are of a yellowish colour, with the basal portions vaguely infuscate or sordid; they are very finely and densely punctured, and not shining. The hind body is a little dilated towards the extremity, and is very finely and densely punctured; the legs are yellow.

In the male, on the under side, the 6th segment of the hind body has a broad and deep impression before the extremity; the middle part is produced on each side, and has a deep notch in the middle; the sides of this notch are very densely fringed with very conspicuous short black setæ.

117. *Scopæus virilis*, n. sp. Rufo-testaceus, abdomine infuscato, pectore clytrisque fuscis, his apice testaceis, prothoracis longitudine; abdomine apicem versus dilatato. Long. $1\frac{2}{3}$ lin.

Mas, abdomine segmento 6° ventrali emarginato, 7° late profundeque exciso, excisionis angulis posterioribus prominulis, intus curvatis, excisionis basi utrinque membranâ angustâ intus oblique prominulâ.

This species much resembles the *S. complex*, but has shorter elytra, and quite different male characters. The antennæ are reddish, moderately long, and stout; 3rd joint scarcely so long as 2nd. Head as broad as the thorax, distinctly narrowed in front, reddish, but darker on the upper side, convex, extremely densely and finely punctured. Thorax as broad as the elytra, scarcely rounded at the sides, and but slightly narrowed behind, finely but not extremely densely punctured, and distinctly a little shining, a little elevated in the middle in front of the scutellum, and impressed on each side of the elevation. Elytra about as long as the thorax, densely and finely punctured, infuscated at the base, and distinctly yellowish in their apical portion. Hind body broad, extremely finely and densely punctured, infuscated at the base, yellowish towards the extremity. Legs yellow. Underside reddish-yellow, with the breast and base of hind body smoky.

In the male, on the under side, the 3rd and 4th segments

of the hind body are a little impressed in the middle, the 6th has the hind margin slightly but very broadly emarginate; the 7th has a large portion of its hinder part cut out, so as to present a large gap in the middle; at each corner of the base of this is a fine pointed membrane projecting inwards, between these the base projects a little, and is just a little emarginate; the hind portion of the gap is distinctly narrowed by the produced sides being a little turned inwards.

Three specimens (all males). Hiogo and Arima.

Obs.—Besides these three individuals, there is another specimen which I believe will prove to belong to a distinct species; it has the elytra and metasternum shorter, the latter clear red; the male characters, if not the same as in *virilis*, are extremely similar.

118. *Scopæus lithocharoides*, n. sp. Latior, parallelus, fuscus, omnium dense subtilissimeque punctulatus, opacus; antennis palpisque rufis, pedibus testaceis. Long. 2 lin.

This species has greatly the facies of a *Lithocharis* of the *ochracea* group. Antennæ reddish, nearly as long as head and thorax; 3rd joint longer and more slender than 2nd, 10th about as long as broad. Mandibles and palpi yellow. Head rather darker in colour (on the upper side) than the other parts, nearly black, just a little broader than the thorax, densely and so finely punctured, that the punctuation is scarcely visible. Thorax rather narrower than elytra, straight at the sides, distinctly pentagonal, about as long as broad, extremely finely and densely punctured, with a fine smooth space along the middle. Elytra longer than the thorax, of a dirty-brownish colour, finely and closely punctured. Hind body a little narrowed at the base, finely and closely punctured. Legs yellow.

In some specimens, which I believe to be males, the hind margin of 7th segment of the hind body is a little emarginate on the under side.

Rubbish heaps, Mogi Bay, near Nagasaki.

119. *Scopæus basicornis*, n. sp. Fuscus, thorace obscure rufescente, antennis pedibusque testaceis, omnium dense subtilissime punctulatus; antennis articulis 1°, 2°-que incrassatis, ceteris abrupte gracilioribus. Long. $\frac{3}{5}$ lin.

This species, remarkable on account of the structure of

its antennæ, and from the fact that the head is not emarginate behind, will probably ultimately prove to belong to a distinct genus.* Antennæ yellowish, short; the 2nd joint extremely broad, three or four times the width of the small and slender 3rd joint; the joints 3—10 are very slender, the 11th joint a little broader than the preceding ones. Palpi reddish. Head rather long and narrow, distinctly narrowed in front, the base a little rounded; it is rather darker in colour than the other parts, so that it is nearly black, and it is extremely finely and densely punctured. The mandibles are red. The thorax is distinctly narrower than the elytra; it is longer than broad, is a little narrowed behind, of an obscure reddish colour, excessively finely and densely punctured. Elytra parallel, longer than the thorax, of an infusate yellowish or brownish colour, finely and densely punctured. Hind body not narrowed at the base, extremely finely punctured. Legs yellow.

The male has the hind margin of the 7th segment of the hind body a little emarginate on the under side.

Three specimens (2 ♂, 1 ♀) from rubbish heaps at Nagasaki.

120. *Lithocharis spectabilis*, Kr.

A few specimens found in dung.

121. *Lithocharis staphylinioides*, Kr. I identify these specimens with some doubts with Kraatz's description. Principally from the fact that the hind margin of the head, though much emarginate on the under side, is but little so, on the upper side.

In rubbish heaps at Nagasaki; common in the spring.

122. *Lithocharis debilicornis*, Woll. I am unable to find any good character to distinguish the Japan individuals of this species from specimens I possess from the Canary Islands, Egypt, and Persia.

* It is possible, indeed, that the *Sc. basicornis* may prove to belong to the genus *Thinocharis*, Kr. (in which the structure of the antennæ is described to be as in this species), but I have seen no specimen of that genus to compare with the *S. basicornis*, and am unable to ascertain, owing to the small number of specimens at my command, if it possess the characters of the trophi assigned to the genus *Thinocharis* by Kraatz.

123. *Lithocharis Lewisia*, n. sp. Picea, antennis pedibusque rufo-testaceis, elytrorum basi rufo-brunneo, abdomine apicem versus dilutiore: capite opaco, prothorace elytrisque evidenter asperato-punctatis. Long. fere $2\frac{1}{2}$ lin.

About the size of *L. maritima*, Aubé. This species is remarkable on account of its sculpture, which consists not of impressed punctures, but of raised points. The antennæ are reddish-yellow, rather stout, about as long as head and thorax; 3rd joint more slender and longer than than 2nd, of 4—10 each joint is distinctly shorter but not broader than its predecessor, the 10th about as long as broad. Head large, rather broader than the thorax, of a blackish colour, densely and roughly punctured, not shining, with an indistinct smooth line along the middle. Thorax broader than long, a little narrowed behind, its width in front about equal to that of the elytra; its punctuation is similar to that of the head, but is much less dense; it has a very fine smooth line along the middle. Elytra much longer than the thorax, black, with the basal portion reddish, roughly and moderately closely punctured, a little shining, their hinder edge distinctly margined (as in *fuscula* and allies.) Hind body pitchy at the base, but yellowish at the extremity; finely but not densely punctured. Legs yellow. Hinder part of metasternum reddish.

A single ♀ individual taken on the sea-shore at Kobé.

124. *Lithocharis prolixa*, n. sp. Angustula, nigra, antennis, pedibus elytrisque rufo-testaceis, his circa scutellum nigricantibus. Long. 2 lin.

Mas, abdomine segmento 6° ventrali apice medio tuberculato-elevato, 7° apice latius exciso.

This species has somewhat the appearance of a *Philonthus prolixus* or a small *Lathrobium*. Antennæ reddish, rather shorter than head and thorax; 3rd joint narrower and scarcely longer than 2nd, of 4—10 each is distinctly shorter but not broader than its predecessor, the 10th about as long as broad. Palpi reddish. Head broader than the thorax, black, finely and densely punctured, with an almost invisible smooth line along the middle; its pubescence is fine but distinct, the tubercles over the antennæ are reddish. Thorax just a little narrower than

the elytra, about as long as broad, a little narrowed behind, finely, densely and indistinctly punctured, with a smooth line along the middle, which becomes indistinct towards the front, and the basal part of which has a fine channel. Elytra longer than the thorax, bright yellowish-red, with a small triangular patch at the scutellum black, finely and closely punctured. Hind body black, a little dilated towards the extremity, very finely and densely punctured, quite dull. Legs yellow.

In the male the hind margin of 6th ventral segment is a little thickened in the middle, and has this part turned downwards, so as to form a kind of projecting tubercle; the 7th segment has the hind margin broadly emarginate.

Under seaweed at Iwosima and Amakusa. (Nine individuals.)

125. *Lithocharis parviceps*, n. sp. Testacea, capite nigricante, abdomine fusco; dense subtilissime punctulata, subopaca; prothorace quadrato, medio lineâ subtiliore impunctatâ. Long. vix 2 lin.

Mas, abdomine segmento 6° ventrali, margine posteriore emarginato, medio breviter nigro-asperato, utrinque fasciculâ nigrâ incurvatâ; 7° omnium latius profundiusque exciso.

Allied to *L. ochracea*. Antennæ reddish-yellow, rather slender. Head small, black, densely and extremely finely punctured. Thorax narrower than the elytra, quadrate, yellowish, but rather redder in colour than the other parts, extremely finely and densely punctured with a smooth line along the middle. Elytra longer than the thorax, dirty yellow, densely and very finely punctured. Hind body extremely densely and finely punctured, pitchy yellow. Legs yellow.

Common.

Obs.—I should have supposed this species to be the *L. nigriceps* of Kraatz, except that he says nothing of the fascicle of elongate black hairs which is conspicuous on either side of the emargination of the 6th ventral segment of the hind body, in the male.

126. *Lithocharis dissimilis*, n. sp. Robusta, nigra, antennis pedibusque rufis, his femoribus infuscatis, elytrorum apice testaceo; fortiter asperato-punctata, prothorace valde transverso. Long. vix 2 lin.

This species has somewhat the facies of a *Sunius latus*, but I am not acquainted with any *Lithocharis* it resembles at first sight. Antennæ rather short and slender, yellowish; 3rd joint not longer than 2nd, 10th joint as long as broad. Palpi reddish. Head large, quite as broad as the thorax, black, not shining, densely and roughly punctured, the disc is convex; the eyes are large and prominent. Thorax nearly twice as broad as it is long, a little narrowed behind, its width in front quite equal to that of the elytra; it is roughly and rather closely punctured, the punctuation consisting of fine raised tubercles; these are dull, while the interstices separating them are shining. Elytra much longer than the thorax, somewhat shining, blackish with the extremity yellow, rather coarsely rugosely punctured. Legs yellowish, with the femora infuscate, the tarsi slender, their 4th joint even more slender than the 3rd.

One female specimen, found in a rubbish heap at Nagasaki.

127. *Acanthoglossa* (?) *setigera*, n. sp. Fulvo-testacea, nitidula, fortiter punctata, antennis pedibusque testaceis; abdomine lato subtiliter punctato. Long. $1\frac{1}{2}$ — $1\frac{2}{3}$ lin.

I am not acquainted with the genus *Acanthoglossa*, Kr., and place this insect therein only provisionally, as I am unable to ascertain properly its generic characters, and can place it in no other described genus.

Of a broad *Boreaphilus* like form. Yellowish in colour, and furnished with a few very conspicuous long outstanding setæ. Antennæ rather short, distinctly a little thickened towards the extremity; 1st joint elongate, almost as long as the three following together, 3rd joint more slender than 2nd, about equal to it in length, 4—10 each a little shorter than its predecessor, 10th joint distinctly transverse, 11th joint stout, broader than 10th. Head rather broader than the thorax, distinctly narrowed in front, very coarsely punctured, the interstices forming fine reticulations; the eyes convex, moderately large. Thorax a little narrower than the elytra, distinctly narrowed behind, all the angles and the front margin much rounded, so that it appears suborbiculate. Elytra broad and short, a little contracted at the shoulders, longer than the thorax, coarsely punctured, shining. Hind body very coarsely margined at the sides, finely and indistinctly punctured, the 6th segment almost impunctate. Legs

pale yellow, only moderately long, the femora rather stout.

Two specimens (a third I unfortunately lost); under dead leaves at Maiyasama, Hiogo.

MESUNIUS, nov. gen. *Pæderini* (juxta *Sunium* locandus).

Labrum medio quadridenticulatum.

Palpi maxillares articulo ultimo vix distinguendo.

Tarsi articulo 4^o bilobo.

Mandibles very elongate and slender, the basal half of each with three teeth, the upper one elongate, the lower one very short. Labrum very broad, in the middle with a notch, on each side of which is a distinctly projecting tooth, and outside this is another tooth separated by a shallow notch from the other. Maxillary palpi long and slender, 2nd joint very elongate and slender, 3rd elongate and but little thickened, rather shorter than the second, 4th joint invisible. Antennæ slender, not geniculate, with the two basal joints (more particularly the 1st) stouter than the others. Head with a narrow neck. Eyes small. Thorax with the sides rounded and not angulate. Hind body dilated. Posterior tarsi with the basal joint elongate, the 4th joint bilobed.

The insect for which I establish this genus is clearly allied to the *Sunius pulcher* of Aubé. In Von Heyden's "Entomologische Reise nach dem sud. Spanien," the *S. pulcher* (or a closely allied species) is figured as belonging to the genus *Mecognathus*, Woll. This, however, is an error. The *S. pulcher*, Aubé, belongs to a genus quite distinct from *Mecognathus*, Woll., and possesses indeed all the characters I have assigned above to the genus *Mesunius*, in which genus it should therefore be placed for the present, though I believe the Algerian insect will ultimately prove to be generically distinct from the Japanese one.

128. *Mesunius Wollastoni*, n. sp. Niger, fortiter punctatus, tenuissime pubescens, antennis pedibusque testaceis, illis basi rufis, prothorace basi medio bi-impresso; elytris hoc brevioribus. Long. 3 lin.

Antennæ rather shorter than head and thorax, yellow, with the basal joints redder than the others; 3rd joint very slender, twice as long as 2nd, 4—10 each distinctly shorter than its predecessor, 10th joint slender, three times

as long as broad; mandibles reddish. Palpi yellow. Head broad and short, the part in front of the eyes being short, convex behind, the hinder angles entirely rounded, shining pitchy black, coarsely, closely and regularly punctured. Thorax intermediate in width between the head and elytra, rounded at the sides, and narrowed both in front and behind; it is longer than broad, it is shining pitchy black, coarsely and moderately closely punctured, the punctures at the base coarser and not so close; with a slight elevation in the middle in front of the scutellum, and an obscure impression on each side of it (as in *Scopæus*). Elytra abbreviated, narrowed at the shoulders, shorter than the thorax, coarsely and closely punctured. Hind body dilated in the middle, closely punctured, the punctuation of the basal segments rather coarse, of the apical ones fine, the basal segments sometimes pitchy red. Legs pale yellow.

The male has a small notch in the middle of the hind margin of the 7th ventral segment of the hind body.

Four specimens; under dead leaves. Maiyasama, Hiogo, July, 1871.

NEOGNATHUS, nov. gen. (juxta *Sunium* locandus).

Labrum medio anguste excisum utrinque vix dentatum.

Caput collo tenuissimo. Prothorax medio angulatus, antrorsum abrupte angustatus.

Antennæ tenuissimæ, rectæ.

Tarsi posteriores articulo primo elongato, 4° bilobo.

This interesting genus is readily distinguished from *Sunius* by the form of its head and thorax. Labrum with a small notch, and apparently without tooth, but on examination, with the microscope, it is found that the notch is bounded on each side by a minute double tooth, the external portion of which is more prominent than the internal. Maxillary palpi elongate, 3rd joint slender, and not much incrassate. Mandibles extremely slender; from below the middle of each proceeds a long slender curved tooth, this tooth furnished with two small sharp teeth on the inner side near its base. Eyes rather large and prominent. Base of the head entirely rounded, furnished with an extremely narrow neck, which however is liable to be thought larger than it really is, owing to its being encased by a supplementary piece attached to the anterior

part of the thorax. Thorax with its anterior third suddenly and abruptly constricted. Anterior femora a little dilated. Hind tarsi with the basal joint elongate, the 4th joint bilobed.

Sunius pulchellus, Kraatz (from Ceylon), belongs to this genus.

129. *Neognathus angulatus*, n. sp. *Angustulus*, nigricans, elytrorum apice, antennis pedibusque testaceis, his geniculis tibiisque quatuor anticis plus minusve infuscatis. Long. 2 lin.

Mas, abdomine segmento 7^o ventrali, apice medio, triangulariter exciso, 6^o latius minus profunde semicirculariter exciso.

Var. castaneus, pedibus tote testaceis, capite thoraceque infuscato, abdomine ante apicem nigricante.

Very closely allied to *N. pulchellus*, Kr., but with quite different male structure of the 6th ventral segment; also with the antennæ rather longer and more slender, the elytra a little longer, and also with some slight colour distinctions. The antennæ are long and very slender, pale yellow, joints 2—5 sometimes infuscate, sometimes not paler than the rest. Head blackish, broader than the thorax, densely and rugosely punctured. Thorax with its greatest width in front of the middle, where it is equal to the elytra; it is considerably narrowed behind; it is of a blackish colour, coarsely, densely, and rugosely punctured. Elytra rather shorter than the thorax, black, with the extremity pale yellow, coarsely and rather closely punctured, but distinctly shining. Hind body slightly dilated towards the extremity, rather closely punctured. Legs pale yellow, the extremity of the femora a little infuscate, as are also the four front tibiæ; hind tarsi very long.

The pigmentary matter is liable to be more or less deficient, as in *Sunius angustatus*.

Nagasaki, one specimen of type, and one of pale form; North China, two individuals of type, and one of the pale form.

130. *Sunius latifrons*, n. sp. *Elongatus*, niger, subopacus, fortiter punctatus; antennis pedibusque albidis; capite elytris latiore, illis prothoracis longitudine. Long. $2\frac{1}{2}$ lin.

Mas, abdomine segmento 7° ventrali producto, apice medio anguste profundius exciso, 6° margine posteriore late emarginato, emarginationis margine nigro-setoso.

Antennæ nearly as long as head and thorax, pale yellow, slender, the extremity a little thickened, third joint one and a half times as long as 2nd. Palpi pale yellow, mandibles red. Head very large, broader than the elytra, the eyes large and convex; it is very coarsely punctured, so that the interstices are only fine reticulations; in the middle of each puncture is a very fine tubercle. Thorax narrower than the elytra, much longer than broad, and much rounded at the sides; its sculpture similar to that of the head, but coarser. Elytra about as long as the thorax, coarsely, closely and rugosely punctured. Hind body a little dilated towards the extremity, rather sparingly punctured. Legs white.

Three specimens, found at Nagasaki by beating trees.

131. *Sunius histrio*, n. sp. Elongatus, niger, subopacus, fortiter punctatus, antennis pedibusque albidis; capite elytris latiore, illis prothorace paulo longioribus. Long. 3 lin.

Mas, abdomine segmento 7° ventrali, apice medio, minus profunde triangulariter exciso, 6° simplice.

This insect so greatly resembles the *S. latifrons* in every respect, that I could scarcely distinguish it therefrom, except by the male characters, which are very different. It is, however, a rather larger and broader species, with the thorax rather broader and more rounded at the sides, the elytra a trifle longer, and also with the joints of the antennæ slightly longer.

Two specimens, 1 ♂, 1 ♀. Found in Mitzuyama, Nagasaki.

132. *Sunius brevipes*, n. sp. Fulvo-testaceus, opacus, antennis pedibusque testaceis, abdomine segmentis ultimis duobus nigricantibus; elytris thorace paulo longioribus. Long. 1½ lin.

Mas, abdomine segmento 7° ventrali, apice medio, anguste triangulariter exciso.

This species belongs to the *bimaculatus* group, and is the smallest species I know of the group; at the same time it is rather robustly formed, and has the antennæ and

legs shorter and stouter than usual. Antennæ yellow, the apical joints bead-like; 3rd joint longer than 2nd, about equal to the 4th, 10th a little stouter than 9th, only a little longer than broad, 11th joint distinctly broader than 10th. Head rather broader than the thorax, of a tawny colour, not much constricted in front, the eyes only moderately prominent; it is densely punctured and not shining. Thorax rather narrower than the elytra, shorter than the head, similar in colour to it, considerably narrowed behind; densely punctured, not shining. Elytra distinctly longer than the thorax, and slightly paler in colour, densely and rugosely punctured, just a little less dull than head and thorax. Hind body densely punctured, the 6th segment black, and the 7th also infuscate. Legs short and stout, yellow. Metasternum short, coarsely punctured. The 7th segment of the hind body in the male is furnished on the under side with a narrow but rather deep triangular notch.

Orakami Marsh, Nagasaki.

Obs.—Two individuals differ from the rest, in being just a little longer and narrower, with the apical joints of antennæ and elytra a little longer, and it is possible they may prove to be a different species.

133. *Sunius oculatus*, n. sp. Testaceus, vix nitidus, abdomine dense subtiliter punctato, segmento sexto nigro; elytris thorace longioribus. Long. $1\frac{2}{3}$ lin.

Mas, abdomine segmento 7° ventrali, apice medio, triangulariter exciso.

Closely allied to *S. brevipes*, but certainly quite distinct from it by the following characters. Paler in colour, rather more elongate and fragilely formed, the antennæ a little longer, the eyes markedly convex and large, the elytra a little longer and more shining, the hind body more constricted at the base and more finely punctured, with the 7th segment paler in colour; the metasternum longer and less coarsely punctured, the notch of the 7th segment in the male broader.

Though I have seen only one female specimen of this species from Japan, Mr. Lewis has sent me several others from China.

Found with *S. brevipes*.

134. *Sunius bicolor*, n. sp. Elongatus, angustus, testaceus, elytro singulo apicem versus, plagâ nigrâ elongatâ,

abdomine segmento 6° toto, 7°que basi nigro. Long. 2 lin.

Mas, abdomine segmento 7° ventrali apice triangulariter exciso.

This very narrow and elongate species resembles our European *bimaculatus*, but is quite distinct from it. Antennæ pale yellow, long and slender; 3rd joint much longer than 2nd, 10th joint scarcely visibly stouter than the 9th, quite twice as long as broad; 11th joint slender and elongate, stouter than the 10th, about three times as long as broad. Head rather broader than the thorax, densely punctured and not shining, the eyes large and prominent, their hind margin distant from the hind angle about as far as the length of the eye. Thorax much narrower than the elytra, much longer than broad, much narrowed behind. Elytra long and narrow, distinctly narrower at their extremity, roughly and moderately closely punctured, a little shining; each one has a narrow elongate black dash commencing about the middle of each and extending towards but not reaching the apex; this mark is in some specimens obsolete. Hind body very elongate and narrow, distinctly broader towards the extremity, rather closely and distinctly punctured; the 6th segment black, and the 7th also dark except towards the extremity. Legs very pale yellow.

Two specimens, Orakami Marsh, Nagasaki.

Also from China. One of these specimens is marked as found in dung.

135. *Sunius suffusus*, n. sp. Elongatus, fulvus, capite prothoracis lateribus, abdominis apice pectoreque nigricantibus; antennis, pedibus elytrisq̄ue testaceis. Long. $2\frac{2}{3}$ lin.

Mas, abdomine segmento 7° ventrali, apice medio, anguste exciso; 6° margine posteriore emarginato, emarginatione subtiliter nigro-setoso, medio ante emarginationem indistincte longitudinaliter impresso.

Antennæ very long and slender, 3rd joint much longer than 2nd, 4—10 each one considerably thicker at the extremity than at the base. Head broader than the thorax, of a tawny colour, but greatly suffused with black, densely punctured and dull; eyes large and prominent, remote from the hinder angles. Thorax longer than broad, greatly narrowed behind, its width in front about equal to

that of the elytra; it is of a tawny red colour, marked at the sides with black; it is coarsely punctured and not shining. Elytra coarsely punctured, of a dirty-yellow colour, but little longer than the thorax. Hind body elongate and narrow, coarsely and closely punctured, of a tawny-red colour, the two apical segments black. Legs yellow. Breast black, with the mesosternum in the middle, and also the metasternum at the extremity in the middle, reddish.

Nagasaki. Two specimens. In a third individual the thorax is suffused with black, as are also the basal segments of the hind body.

136. *Sunius chloroticus*, n. sp. Fulvo-testaceus, antennis, elytris pedibusque pallidis; capite dense minus fortiter punctato, elytris thorace paulo brevioribus. Long. $2\frac{1}{2}$ lin.

Mas, abdomine segmento 7^o ventrali apice anguste profundeque exciso; 6^o margine posteriore late semicirculariter emarginato, emarginatione evidentiter nigro-spinoso, spinis validis, numero circiter 16.

Antennæ pale yellow, rather long and slender, the apical joint only slightly stouter. Head tawny yellow, densely but not so coarsely punctured as usual, quite dull; the eyes very remote from the hind angles. Thorax similar in colour to the head, rather narrower than the elytra, longer than broad, a little narrowed behind, coarsely punctured. Elytra pale yellow, slightly shorter than the thorax, rather coarsely punctured, a little shining. Hind body yellow, coarsely punctured. Legs pale yellow.

The male characters (as described above) are very remarkable.

Five specimens.

137. *Pæderus Poweri*, Lewis (not described). Apterus, niger, elytris brevissimis nigro-cæruleis, antennis pedibusque rufo-testaceis, his femorum apice angustissime nigro. Long. 6—7 lin.

Antennæ rather longer than head and thorax, yellow, distinctly pilose; 3rd joint quite twice as long as 2nd, 6—10 each distinctly shorter than its predecessor. Head broad and short, rather broader than the thorax, shining black, sparingly punctured; eyes small but prominent, palpi yellow, mandibles pitchy. Thorax very convex,

suborbiculate, a little longer than broad, very shining black, very sparingly punctured. Elytra very short and narrow, much shorter and narrower than the thorax, dark bluish or greenish, sparingly and coarsely but obsolete punctured. Hind body dilated from the base towards the extremity, shining black, very sparingly punctured. Legs yellow, with the extreme point of the femora black. Metasternum extremely short, extremity of middle coxæ almost reaching the base of the hind coxæ.

Beaten off trees at Kawatchi in September and October, 1871.

This fine insect has been named by Mr. Lewis in honour of his friend Dr. Power, who is so well known for his persevering labours in discovering new and rare species of British Coleoptera.

138. *Pæderus mixtus*, n. sp. (*P. tamulo*, Er. affinis). Alatus, niger, capite elytrisq̄ue chalybeis, thorace abdominisq̄ue segmentis 4 primis rufis; palpis antennisque basi testaceis, mandibulis piceo-testaceis. Long. 3—4 lin.

This species is evidently closely allied to *P. tamulus*, Er., a species I know only by description, but Erichson's description is not characteristic of this species in one or two points. *P. mixtus* is about the size and form of *P. longipennis*, but is differently coloured, and has the thorax more narrowed behind, &c. &c. Antennæ slightly longer than head and thorax, black, the two basal joints yellow, but more or less infuscate. Mandibles pitchy yellow (they appear black when closed, owing to the outer edge being darker in colour than the other parts). Head quite as broad as the thorax, eyes prominent; it is dark blue, the punctuation rather close and distinct except on the disc. Thorax a little longer than broad, distinctly narrowed behind, finely but distinctly punctured, except along the middle, which is impunctate. Elytra scarcely a fourth part longer than the thorax, dark blue, with a distinct white pubescence, moderately, strongly and not closely punctured. Legs entirely black.

Observed once in some numbers in the marsh at Nagasaki; also in China, descending as far south as Hong Kong.

139. *Pæderus Idæ*, Lewis (not described). Alatus, niger, mandibulis, thorace, abdominis segmentis 4 primis

pedibusque rufis, his geniculis infuscatis, antennis basi testaceo apice infuscato. Long. 3—3½ lin.

Variat tibiarum, antennarumque colore, interdum fere testaceo, interdum piceo.

Extremely closely allied to our *P. longipennis*, being similar in size and colour, and varying in the same manner in the colour of the limbs. *P. Idæ* has the head always broader, and the eyes more prominent, the punctuation of the head more distinct, the articulations of the antennæ distinctly longer, and the elytra just a little shorter than in *longipennis*.

This species is abundant in Japan and China, and I have also specimens of it from Bangkok and Lombock, so that it is widely distributed in the eastern regions of the old world. Mr. Lewis says, "In immense profusion in China and Japan. I have seen it just at dusk on the banks of the Yangtze in small clouds, on the wing."

140. *Ædichirus Lewisius*, n. sp. Rufo-testaceus, nitidus, capite, elytris, abdominisque apice nigris, geniculis anguste piceis; elytris prothoracis longitudine. Long. 3½ lin.

Mas, abdomine segmento 7° ventrali, apice medio, late subsymetrice emarginato, emarginationis latere sinistro postice magis producto, et acuminato.

This species is of the size and colour of *Æ. pæderinus*, but is readily distinguished by its quadrate elytra, but slightly narrowed at the shoulders, and by its more sparingly punctured thorax and elytra. The head has a few coarse punctures on the disc; it is about as broad as the thorax. The thorax is much narrower behind; it has on each side of the middle an irregular longitudinal series of six or seven coarse punctures, and three or four other coarse punctures on each side. The elytra are just as long as the thorax, their base coarsely punctured, their extremity free from punctures. The legs have the knees for a narrow space pitchy, the hind tibiæ are rather long and much dilated at the extremity.

A single individual found at Simabara, in March, 1870.

141. *Ædichirus Idæ*, Lewis (not described). Rufo-testaceus, nitidus, capite, elytris, abdominisque apice

nigris; elytris prothorace paulo longioribus. Long. $3\frac{1}{3}$ lin.

Mas, abdomine segmento 7^o ventrali, apice medio late, vix asymetrice emarginato, emarginationis latere sinistro postice magis producto, et acuminato.

This elegant insect is in all respects very closely allied to the *Æ. Lewisius*, and differs from it only as follows: The *Æ. Ida* is rather more robust, has the limbs a little shorter, the knees not or scarcely infuscate, and the elytra a little longer.

Under stones in the spring on Mitzuyama, Nagasaki.

142. *Pinophilus insignis*, n. sp. Niger, subopacus, pedibus flavis; dense punctatus; thorace subquadrato, basin versus leviter angustato. Long. 7 lin.

Allied in form and appearance to *P. latipes*, but very distinct from it by the very dense punctuation of the thorax. Antennæ rather shorter than head and thorax, yellow, with the extremity of each joint, except the basal ones, a little darkened. Palpi pale yellow, mandibles pitchy. Head rather narrower than the thorax, the back part densely and coarsely punctured and opaque, the front part shining, but with some coarse punctures on each side, and also with some small and fine ones scattered over it. Thorax in front as broad as the elytra, distinctly narrowed behind, its length quite as great as its width at the front angles; it is densely and coarsely punctured, and has along the middle a very narrow smooth line, which however does not extend to the front margin. Elytra slightly longer than the thorax, densely and rather coarsely punctured. Hind body rather coarsely and closely punctured. Legs pale yellow, the front femora infuscate beneath, and the front tibiæ also infuscate in the middle; the front tarsi extremely dilated, and with the membranous part produced behind.

Orakami Marsh, Nagasaki; a single female specimen, from which most of the pubescence has been removed.

143. *Pinophilus Lewisius*, n. sp. (*P. brevicolli* affinis). Niger, antennis brevioribus, palpis pedibusque testaceis; prothorace crebre fortiter punctato, leviter transverso, elytris latiore. Long. fere 4 lin.

Rather narrower than *P. brevicollis*, with shorter elytra and more coarsely punctured thorax, &c. Antennæ short,

pale yellow, joints 4—10 differing little from one another, moniliform. Palpi yellow, terminal joint very elongate, mandibles reddish. Head much narrower than the thorax, black, coarsely but not densely punctured, a space in the middle near the front impunctate. Thorax broader than the elytra, rather broader than long, very convex transversely, coarsely and rather closely punctured; its pubescence extremely fine, short and scanty. Elytra about as long as the thorax, black, coarsely and closely punctured. Hind body slender, moderately, closely and distinctly punctured, with a distinct dark pubescence. Legs yellow.

A single specimen only, found on the summit of Mitzu-yama, Nagasaki, April 22nd, 1870.

144. *Pinophilus rufipennis*, n. sp. Niger, antennis pedibusque flavis, illis articulis extrorsum infuscatis, elytris rufis basi lateribusque nigris, abdomine apice rufoferrugineo. Long. 5—5½ lin.

Antennæ shorter than head and thorax, yellow, each joint except the two basal ones with the apical portion a little infuscate. Palpi pale yellow, mandibles reddish-yellow. Head small, narrower than the thorax, the eyes placed very near the hind angles; it is coarsely punctured, and between the large punctures are some very fine ones. Thorax quite as long as broad, of the width of the elytra, not narrowed behind, rather closely punctured; between the large punctures are placed very fine ones; it has only a very rudimentary trace of a middle line, at the base of which is placed a very fine and short, not very easily seen, channel. Elytra distinctly longer than the thorax, red, with the base and inflexed margin black, closely and deeply punctured, not shining. Hind body rather closely and distinctly punctured, the extreme hind margin of the 6th segment, and the whole of the 7th and 8th segments, red. Legs yellow; coxæ pitchy.

The male seems scarcely to be distinguished by external characters from the female.

Common in marshes at Hiogo and Nagasaki. Also found in China.

145. *Evæsthetus nitidulus*, n. sp. Fulvus, nitidulus, obsolete punctatus, pectore nigricante; prothorace fortiter bi-impresso. Long. 2/3 lin.

Of a shining tawny colour, with the breast darker. An-

tennæ and palpi yellow, the former with the 9th joint rather larger than the 8th, the 10th much larger than the 9th. Head considerably narrower than the thorax, its punctuation a little stronger than that of the other parts. Thorax narrower than the elytra, very short, greatly constricted behind the middle, transversely impressed just in front of the base, finely channelled along the middle, the disc on each side with a deep and very large impression; there are also two large punctures near the front margin in the middle, and another larger puncture on each side. Elytra broad, scarcely longer than the thorax, shining, very finely punctured. Hind body scarcely visibly punctured. Legs yellow.

Three specimens, all (I think) females, found at Nagasaki in the month of March.

STENÆSTHETUS, nov. gen. (*Stenini.*)

Tarsi antichi et intermedii quinque-, posteriores quadriarticulati.

This interesting genus is intermediate in appearance between *Evæsthetus* and *Stenus*.

Labrum horny. Mandibles long, slender and curved, each one with a long pointed tooth in the middle. Maxillary palpi with the 1st joint long and slender, geniculate at its point of insertion; 2nd joint slightly longer than the 1st, a little thickened in the middle; 3rd joint longer than 2nd, distinctly dilated, elongate oval, with the base produced; 4th joint extremely fine and minute. Paraglossæ very elongate and linear; 1st joint of labial palpi concealed in my preparation behind a projecting portion of the mentum; 2nd joint short and broad, oval; 3rd joint very minute, subulate. Antennæ extremely slender, the two apical joints stouter than the others. Thorax subcylindric, very finely margined at the sides; prosternum large, anterior coxæ small, and but little exerted. Mesosternum forming a neck received into the thorax. Middle coxæ small, nearly contiguous. Hind coxæ conical, but with the base a little produced on the outside. Hind body stout, cylindric, scarcely margined at the sides. Legs very slender, anterior and middle tarsi five-jointed; posterior tarsi with four joints, the basal one very elongate (showing with a microscopic examination no sign of constriction or division), the basal joint as long as the others

together. The antepenultimate joint of all the tarsi simple.

146. *Stenæsthetus sunioides*. Brunneus, subopacus, capite, thorace, elytris que crebre fortiter punctatis, abdomine omnium dense subtilissimeque punctato, antennis pedibusque testaceis. Long. $1\frac{1}{3}$ lin.

Mas, abdomine segmento 7^o ventrali longitudinaliter fisso, 6^o late triangulariter impresso.

Antennæ rather short, extremely slender except the basal joint (or two joints); the 10th joint elongate, stouter than the 9th, 11th joint also elongate and stouter than the 10th. (I assume these organs to be 11-jointed, but have quite failed to get a clear view of the four or five basal joints.) Palpi pale yellow. Head large, with the eyes a little broader than the thorax, the front even, rather coarsely and closely punctured; the eyes moderately large, placed very near the back of the head, coarsely faceted. Thorax narrower than the elytra, longer than broad, considerably narrowed behind; it is densely and rather coarsely punctured, even and unimpressed. Elytra broad and short, considerably shorter than the thorax, rather coarsely punctured, a little shining. Hind body very stout, cylindrical, more elevated than the other parts; it is extremely, finely and densely punctured and shining, and its pubescence is so fine and short as to be almost invisible. This curious little insect reminds one of the *Sunii*, but has no outstanding setæ.

Four specimens, found on Mitzuyama, March, 1870. Also from North China.

147. *Stenus tenuipes*, n. sp. Nigro-subchalybeus, dense profundeque punctatus, subtiliter albido-pubescent, palpis articulo primo testaceo, 2^o fusco-testaceo, 3^o fusco-nigro; elytris maculâ sat magnâ fulvâ. Long. $2\frac{1}{2}$ lin.

Of the slender form of *S. biguttatus*, but with the femora thinner, the spot on the elytra larger, and the thorax more cylindrical, and the palpi not quite so darkly-coloured. Antennæ long and slender, generally pitchy in the middle. Head deeply excavate, as in *biguttatus*, the raised line at the bottom of the excavation more distinct. Thorax narrow and elongate, with a short, but deep and distinct, channel or impression in the middle at a considerable distance from the base. Elytra a little longer than the thorax,

each with a distinct rather large yellowish spot, placed much as it is in *biguttatus*, but twice as large as in that species. Legs long, very slender; the femora notably very slender; they are nearly black, but the trochanters are pitchy red. The metasternum is rather coarsely punctured. The male characters are very similar to those of *biguttatus*, but both the notch of the 7th segment, and the emargination (or depression) of the 6th, are a little narrower.

Found on the shore at Hiogo, and also at Kiu Kiang, China.

148. *Stenus alienus*, n. sp. Nigro-subæneus, dense profundeque punctatus, antennis pedibusque fusco-testaceis, palpis testaceis articulo ultimo piceo, elytris maculâ parvâ fulvâ. Long. $2\frac{1}{2}$ lin.

Rather smaller and even more slenderly formed than the *S. tenuipes*, readily distinguished by the colour of the legs and by the smaller spot on the elytra. Antennæ long and slender, the basal joint black, the rest pitchy yellow. Palpi yellow, with the terminal joint pitchy. Head deeply excavate, with a fine but distinct elevated line at the bottom of the excavation. Thorax long and narrow, a little dilated in the middle, very coarsely punctured, with a short, but deep and distinct, channel (or rather elongate fovea) behind the middle. Elytra not longer than the thorax, very coarsely punctured, with a small yellow spot on the middle of each. Hind body very slender, coarsely punctured. Legs very long and slender, of a sordid-reddish colour.

The male has a rather large notch at the apex of the ventral plate of the 7th segment of the hind body. The 6th segment is emarginate at the extremity, deeply impressed in front of the emargination, with the sides of this impression strongly elevated; the extremity of the 5th segment is distinctly depressed.

Found in sandy places at Simabara and Osaka.

149. *Stenus verecundus*, n. sp. (Sec. I. A. Er.) Niger, nitidulus, minus evidentè albido-pubescentis, palpis articulo basali pallido, dense fortiterque punctatus; thorace oblongo, fere æquali, elytris hoc longioribus, abdomine parcius subtiliter punctulato. Long. $1\frac{2}{3}$ lin.

Rather closely allied to *S. cinerascens*, Er., but differing

as follows:—the head has the sulci a little more evident, the central part therefore more distinctly elevated; the thorax is longer, more cylindric, and rather more even, and the elytra are longer, and the articulations of the antennæ are a little longer; the sculpture and pubescence are extremely like those of *cinerascens*, the former is just a little coarser on the head and thorax; the structure and sculpture of the hind body are extremely like those of *cinerascens*, and the legs are also very similarly formed, but the tarsi are just a little more slender.

In the male the hind margin of the ventral plate of the 7th abdominal segment is truncate at the extremity and obsoletely emarginate.

150. *Stenus Lewisius*, n. sp. (Sec. I. A. Er.) Niger, nitidulus, albido-pubescent, palpis basi pallidis, fronte excavatâ, medio acute elevatâ, prothoracis disco impresso et minus dense punctato; elytris hoc paulo longioribus, fortiter profundeque punctatis; abdomine crebre minus distincte punctato, femoribus basi obscure fuscis. Long. $2\frac{1}{8}$ lin.

A very distinct species from any I am acquainted with. Palpi with the basal joint yellow, this colour also extending to the commencement of the 2nd joint. Head with large convex eyes, broader than the thorax, but much narrower than the elytra; the vertex considerably excavate, along the centre of the excavation with a strongly elevated and well-defined interstice. Thorax longer than broad, much narrower than the elytra, considerably narrowed behind, and dilated at the sides, its greatest width at, or slightly behind, the middle; its punctuation is irregular, it being more sparing about the disc than at the base and sides; it has near the middle an ill-defined impression. The elytra are rather longer than the thorax, coarsely and deeply punctured, the interstices shining; they are depressed along the suture; outside this depression, near the base, somewhat elevated, the punctures on this elevated part more sparing. Hind body much pointed, the three carinæ at the bases of segments 2—6 well marked; it is moderately closely, but not strongly, punctured, and its white pubescence is more marked than that of the front parts. The legs are rather long and slender, apparently black, but when examined found to be a little pitchy.

On the underside the male has a notch at the extremity of the 7th segment; the 6th segment has the hind margin

emarginate, and is impressed in front of the emargination, the sides of the impression acutely elevated, but these elevations short; the 5th segment is also a little flattened at the extremity, where it is more finely punctured and pubescent.

A single specimen, found on Mitzuyama, Nagasaki.

151. *Stenus macies*, n. sp. (Sec. I. A. Er.) Elongatus, gracilis, niger, nitidulus, fortiter ruguloso-punctatus, capite elytris latiore, fronte excavatâ, medio late obsolete elevatâ; pedibus elongatis, rufo-fuscis. Long. $2\frac{1}{2}$ lin.

This very distinct species is allied to *S. proditor*, though extremely distinct therefrom. Palpi pitchy, with the first joint and base of the second yellow. Head broader than the elytra; vertex excavated, the middle at the bottom of the excavation broadly but slightly elevated. Thorax narrower than the elytra, longer than broad, the sides in the middle much dilated, coarsely and very densely punctured, the interstices rugulose. Elytra about as long as the thorax, coarsely and rugosely punctured. Hind body slender, the basal segments rather coarsely, the apical ones more finely punctured. Legs very long, dusky red, the lower half of the femora, and a large portion of the tibiæ, being infuscate.

In the male on the under side the hind margin of the 7th segment of the hind body is emarginate; the 5th and 6th segments are broadly and deeply impressed along the middle, the sides of the impressed parts densely clothed with fine yellow pubescence; the 3rd and 4th segments are also a little impressed or flattened.

A single individual, found at Nagasaki.

152. *Stenus puberulus*, n. sp. (Sec. I. A. Er.) Plumbeo-niger, densius albido-pubescent, palpis articulo primo testaceo, pedibus fuscis, femoribus basi rufescentibus; thorace oblongo, æquali, elytris hoc haud longioribus, abdomine obsolete punctato. Long. $1\frac{2}{3}$ lin.

This species is very similar to *S. incanus*, in structure, form, sculpture and pubescence, but it has the elytra much shorter, and the legs differently coloured. Head very similar to that of *incanus* but with the vertex a little excavate. Palpi black, with the basal joint pale. Thorax longer than broad, a little narrowed behind, closely but not coarsely punctured, with a distinct white pubescence;

its form and sculpture and pubescence almost exactly as in *incanus*, but the punctuation is denser. Elytra almost shorter than the thorax, very closely but not coarsely punctured. Hind body just as in *incanus*, that is to say, only indistinctly punctured, but distinctly pubescent, the transverse depressions on the basal segments well marked. Legs with the femora reddish at the base, otherwise much infusate but not quite black, formed as in *incanus*, the posterior tarsi just a little more elongate.

The male has on the underside the hind margin of the 7th ventral segment of the hind body emarginate; the 6th, also emarginate at the extremity, depressed in front of the emargination, the depressed part with conspicuous, long, white pubescence.

Two specimens found on Mitzuyama, Nagasaki.

153. *Stenus japonicus*, n. sp. (*S. opaco*, Er. peraffinis). Niger, subopacus, dense punctatus, palpis fusco-testaceis, basi testaceis, pedibus rufis, tibiis tarsisque infuscatis; fronte latâ obsolete bisulcatâ, thorace subrotundato, abdomine densius punctato. Long. $1\frac{2}{3}$ lin.

This species has all the structural characters of *S. opacus*, Er. It is just a little larger, has the palpi and legs paler, the legs rather longer and more slender, the tarsi with just the structure of those of *S. opacus* (except for being a little longer and more slender), that is to say, they have the fourth joint distinctly bilobed, but with the lobes excessively short and not divergent.

The male has a broad but shallow notch at the extremity of the ventral plate of the 7th segment of the hind body, and the 6th segment has the hind margin a little emarginate. The femora are not (or scarcely) thicker than in the female.

Abundant in the neighbourhood of Nagasaki.

154. *Stenus sexualis*, n. sp. (Sec. I. A. Er.) Niger, aeneo-micans, palpis pedibusque flavis. Long. $1\frac{1}{4}$ lin.

Mas, antennis piceis, articulis duobus basalibus nigris.

Fem., antennis obscure testaceis, apice infuscatis.

This little species is clearly the representative in Japan of our *S. circularis*. It is of the same size and form as that species, but it is brassy, and the legs are paler and more slender, the tarsi being much longer. The upper

part of the head is not concave, but is distinctly bisulcate. The thorax is quite as long as broad (much longer than in *circularis*), considerably rounded at the sides, very densely punctured, the disc with an indistinct channel or fovea. The elytra are longer and much broader than the thorax, coarsely and closely punctured. The hind body is formed as in *circularis*, very pointed at the extremity, the segments greatly impressed at the base; its punctuation is indistinct. The legs are yellow, the hind tarsi long and slender.

Besides the colour of the antennæ the male is distinguished from the female by a slight emargination of the hinder edge of the ventral plate of the 7th segment of the hind body.

Half-a-dozen specimens.

155. *Stenus rugipennis*, n. sp. *S. impresso* affinis, sed fortiter magis rugoso-punctatus. Nigro-æneus, subnitidus, pedibus flavis, antennis palpisque testaceis, apice infuscatis; prothorace disco inæquali. Long. 2 lin.

This species is in structure and colour closely allied to *S. impressus*, but is quite differently sculptured. The antennæ are not so long as in *impressus*; they are yellow, with the basal joint black, and the club a little infuscate; the palpi are yellow; with their apical joint a little infuscate. Head formed as in *impressus*, but equally punctured all over, the punctures being scarcely more remote on the middle elevation than elsewhere. Thorax formed as in *impressus*, more densely and strongly punctured, without central channel, but with the indistinct impressions on the upper surface so closely placed as to render the surface uneven. Elytra slightly longer than the thorax, coarsely and very closely rugosely punctured; towards the sides obsoletely impressed, the punctuation in the impressed part more irregular than elsewhere. Hind body very pointed at the extremity, closely and very coarsely punctured. Legs yellow, not so long as in *impressus*, but otherwise similarly formed.

In the male the 7th segment of the hind body has its hind margin on the under side emarginate.

Found among dead leaves at Copper Temple, Nagasaki.

156. *Stenus cicindela*, n. sp. (Sec. II. B. Er.) Niger, nitidus, grosse profunde æqualiter punctatus, parce pubes-

cens, antennis palpisque testaceis, pedibus flavis, femoribus apice tibiisque basi late nigris, abdomine parcius punctato. Long. $2\frac{1}{4}$ — $3\frac{3}{4}$ lin.

The above diagnosis is that given by Erichson to characterise *S. cicindeloides*; it applies completely to Japanese individuals of a species of *Stenus*. These so greatly resemble European specimens of *cicindeloides* that they would generally be pronounced unhesitatingly as conspecific therewith, and yet a careful examination has revealed to me certain differences which have led me to separate the two with confidence. In the Japanese insect the head is not quite so broad, for though the eyes are even larger, and more convex than in the European insect, the space by which they are separated is less; the thorax is a little more rounded at the sides and therefore less cylindric; the elytra are just a little longer; the articulations of the antennæ are longer, and the hind tarsi are longer and more slender, this being especially notable when the basal joints of the two are compared.

Very abundant in Southern Japan and North China.

157. *Stenus hirtellus*, n. sp. (Sec. II. B. Er.) Niger, nitidus, pube tenuissime erectâ parcius vestitus, fortiter punctatus; antennis, pedibus, palpisque testaceis, illarum clavâ infuscatâ. Long. $1\frac{1}{2}$ lin.

Intermediate between *S. contractus* and *cicindeloides*. Antennæ thickened from the 6th joint to the extremity, the slender joints yellow, the others darker. Palpi yellow. Head rather small, but a little broader than the thorax, indistinctly bisulcate. Thorax not much more than half as broad as the elytra, about as long as broad, considerably rounded at the sides, shining black, coarsely and closely punctured, with a small smooth shining space in the middle. Elytra longer than the thorax, broad and outstanding, closely and extremely coarsely punctured, shining black. Hind body slender in proportion to the elytra, regularly narrowed from the base to the extremity, which is quite pointed; it is very coarsely punctured, and is remarkable on account of the very fine, distinct, upright pubescence with which it is sparingly clothed. Legs yellow, the extremity of the femora just a little clouded.

The male has an extremely minute notch at the extremity of the ventral plate of the 7th segment of the hind body; the 6th segment is a little flattened before the extremity,

the flat part more densely and finely punctured and pubescent.

Orakami Marsh, Nagasaki.

158. *Stenus oblitus*, n. sp. (Sec. II. B. Er.) Niger, nitidulus, parcius albido-pubescent, crebre fortiter punctatus, palpis antennisque testaceis, harum clavâ infuscatâ; pedibus fuscis, tibiis basi albidis, femoribus basi rufo-testaceis. Long. $1\frac{1}{2}$ lin.

Resembles *S. hirtellus*, but distinguished from it by the want of any upright pubescence, by the less inflated elytra, by the colour of the legs, and by its finer and closer sculpture. Antennæ yellow, with the slender club infusate; palpi yellow, the apical joint a little dusky. Head small, only a little broader than the thorax; front flat, obsolete bisulcate, in the middle at the back with a small, smooth, shining space. Thorax a little longer than broad, not much more than half the width of the elytra, closely and rather coarsely punctured. Elytra longer than the thorax, shining black, coarsely and rather closely punctured. Hind body pointed at the extremity, closely and moderately coarsely punctured. Femora reddish-yellow, with the extremity infusate; tibiae and tarsi pitchy, the former white at the base.

Kobé; two specimens (both I think females).

159. *Stenus dissimilis*, n. sp. (Sec. II. B. Er.) Niger, fortiter punctatus, vix nitidus; antennis, palpis, pedibusque testaceis, femoribus apice obscurioribus, elytris thoracis longitudine. Long. $1\frac{1}{3}$ lin.

This little species reminds one of *S. fuscipes*, or *opticus* with yellow legs, but is to be placed near *paganus*, Er. The antennæ are dark yellow, short. Palpi yellow. Head broad, even a little broader than the elytra; the front is broad and flat, quite close to the eyes a little depressed on each side. Thorax narrower than the elytra, rather longer than broad, considerably rounded at the sides, coarsely and densely punctured. Elytra at the suture rather shorter than the thorax, and scarcely longer at the sides; they are a little impressed at the base within the shoulders, so as to make the humeral angles rather prominent; they are coarsely and closely and very deeply punctured. The hind body is not strongly pointed at the extremity, it is very coarsely punctured; the legs, in-

cluding the tarsi, are yellow; the apex of the femora a little clouded.

The only specimen I have seen is probably a male; if so, the sexual characters are but little evident.

160. *Stenus rufescens*, n. sp. (Sec. II. B. Erichson.)
Rufo-testaceus, abdomine apice fusco, oculis permagnis, nigris; fortiter punctatus, elytris thorace brevioribus.
Long. vix 2 lin.

This distinct and remarkable species may be placed in the neighbourhood of *S. latifrons*. It is of narrow build, with very large eyes; it is pale reddish-yellow in colour, the extremity of the hind body and the apical joints of the antennæ infusate. The head is rather deeply sulcate on each side near the eyes, the central part broad, moderately convex; the convex part sparingly punctured. The thorax is rather broader than long, dilated in front of the middle, considerably narrowed behind; it is coarsely punctured, its surface a little uneven. Elytra shorter than the thorax, coarsely punctured, rounded at the sides so as to be distinctly contracted at the shoulders. The hind body is slender, pointed at the extremity, rather sparingly punctured; the basal segment rather coarsely, the apical ones very finely, punctured. The legs are yellow; the lobes of the fourth joint of the tarsus are rather long, slender, and closely applied to the following joint, so that on a superficial examination the tarsi might be supposed to be simple.

In the male the femora are a little thickened, the metasternum at the extremity is densely punctured and delicately pubescent; segments 4, 5 and 6 of the hind body are each depressed towards the extremity, the depressed parts more densely and finely pubescent than the other parts; the 7th segment has a shallow notch at the extremity.

Two specimens; found under dead leaves on Maiyasama.

161. *Stenus currax*, n. sp. (Sec. II. B. Erichson.)
Niger, nitidus, fortiter punctatus; antennis, palpis, pedibusque pallide testaceis. Long. $2\frac{1}{2}$ lin.

We have no European species (that I know of) at all closely allied to this; it is much more slender and shining, and more strongly and sparingly punctured than is *S. oculatus*. Antennæ long and slender, entirely pale yellow. Palpi also long and slender, very pale yellow. Head

slightly narrower than the elytra; the eyes large; it is a little flattened but scarcely excavate between the eyes, the middle part a little raised, coarsely punctured. Thorax much narrower than the elytra, cylindric, slightly narrowed behind, its greatest width in front of the middle, coarsely and closely punctured, but quite shining. Elytra along the suture rather shorter than the thorax, their length at the sides decidedly greater than at the suture, shining black, and very coarsely punctured; the punctures not so close at the extremity as at the base. Hind body narrow and elongate, the basal segments constricted at the base, and in the constricted part with a glittering white pubescence; the basal segments only moderately strongly, the apical ones finely and sparingly, punctured. Legs long, moderately stout, entirely pale yellow.

The male has on the underside a deep notch at the extremity of the 7th segment of the hind body, and has the pubescence on the 5th and 6th segments more marked in the middle near the extremity than elsewhere.

Five specimens; found among dead leaves at the Copper Temple, Nagasaki.

162. *Oxyporus angularis*, Gebl. A single specimen only of an *Oxyporus* has been brought back by Mr. Lewis. It appertains apparently to one of two species which I possess from Eastern Siberia. The *O. angularis* of Gebler has been united to *maxillosus* as a variety thereof; but these specimens at any rate are distinct from *maxillosus*.

Kawatchi, September.

163. *Osorius angustulus*, n. sp. Nigro-piceus, elytris rufo-brunneis, antennis pedibusque rufis, capite rugoso; thorace crebre fortiter punctato, lineâ longitudinali mediâ lævigatâ. Long. $2\frac{1}{2}$ —3 lin.

Antennæ as long as the head and half the thorax, red, the first joint narrower in the middle than at the extremity, about as long as the four following joints together; 3rd joint rather shorter than 2nd; 6th much broader than 5th; 7—10 about similar to one another; each about as long as broad. Head, except the back part, irregularly rugose, and subopaque; the hinder part of this rugose portion divided in the middle by a smoother space; the part of the head in front of the insertion of the antennæ deflexed, and reddish. Thorax rather broader than the elytra, shining black, with the margins reddish, very coarsely punctured,

but with a space along the middle smooth. Elytra just about as long as the thorax, of a reddish colour, coarsely, but irregularly, and not deeply nor closely, punctured. Hind body rather finely punctured, and sparingly clothed with fine yellow hairs.

Five specimens, found under cow-dung in the month of May, at Nita, near Nagasaki.

164. *Bledius fragilis*, n. sp. Testaceus, capite thoraceque nigricantibus, antennis elongatis gracilibus, fronte foveolato; thorace fortiter punctato, medio canaliculato. Long. $1\frac{2}{3}$ lin.

This species is related to *B. verres*, and some of its Egyptian allies. Antennæ long and slender, pale yellow, the elongate club a little darker; 1st joint very elongate, with its apical half incrassate; joints 2—6 slender, 8—10 scarcely so long as broad. Mandibles reddish, elongate and extended. Head dull black, with an obtuse prominent yellow tubercle over the insertion of each antenna, the vertex with a small fovea in the middle. Thorax pitchy, rather shining, about as broad as the elytra, broader than long, the hind angles very obtuse; it is rather coarsely but not deeply punctured, and has a fine channel along the middle. Elytra longer than the thorax, shining yellow, rather closely and moderately finely punctured. Hind body yellowish, with the 7th segment infuscate, almost impunctate. Legs long, pale yellow.

Simabara; single individual.

165. *Bledius lucidus*, n. sp. Rufus, nitidulus, capite nigricante; clytrorum apice, abdomineque apicem versus fuscis, antennis pedibusque testaceis, prothorace fortiter punctato, medio profunde canaliculato. Long. 2 lin.

Antennæ yellow, 3rd joint much shorter than 2nd, joints 8—10 a little transverse. Head nearly black, quite dull, and only obsoletely punctured. Thorax a little narrower than the elytra, rather broader than long, much narrowed behind, the hind angles almost wanting; it is shining red, rather coarsely and sparingly punctured, with a narrow, deep and well-defined dorsal channel along its whole length. Elytra longer than the thorax, shining reddish-yellow, the hinder angles broadly infuscate; they are coarsely and rather closely punctured. Hind body dilated towards the extremity, but with the dorsal segments (especially the penultimate ones) infuscate. Legs

pale yellow, the anterior and middle tibiæ stout and strongly spined, the hind tibiæ slender, sparingly and finely spined.

Tomatzu, Nagasaki; two specimens, and also two others from China.

166. *Bledius orphanus*, n. sp. Niger, sat nitidus, antemmarum basi, clytris pedibusque testaceis, femoribus infuscatis; thorace dense fortiter punctato, medio canaliculato, clytris subtiliter punctatis, thorace paulo longioribus. Long. $1\frac{1}{2}$ lin.

This species in colour and size resembles *B. arenarius*, but has a very different thorax. Antennæ rather long, the two or three basal joints yellow, the rest infuscate; 1st joint long and curved, as long as the four or five following joints together, 2nd joint twice as long as 3rd, 5—10 each a little stouter than its predecessor, the penultimate joints rather strongly transverse. Mandibles reddish, slender, porrect. Head dull black, the antennal tubercles but little elevated. Thorax black, about as broad as the elytra, scarcely broader than long, the hinder angles very obtuse; it is coarsely and very closely punctured, and has a fine channel along the middle. Elytra pale yellow, a little infuscate about the scutellum, scarcely longer than the thorax, finely and closely punctured. Hind body quite black. Legs rather stout, yellow, with the femora pitchy.

Kobé, a single specimen, found on the shore.

167. *Platysthetus operosus*, n. sp. Niger, nitidus, clytris piccis, pedibus testaceis, femoribus infuscatis; capite sat crebre minus fortiter punctato, maris apice bispinoso; clytris thorace brevioribus, parce subtiliter punctatis, alutaceis. Long. $1\frac{1}{2}$ lin.

Allied to *P. cornutus*, but smaller and with the head less strongly punctured. Antennæ black, 3rd joint much shorter than 2nd, the penultimate joints scarcely transverse. Head with the clypeus shining and impunctate, the rest of the upper surface rather finely and not closely punctured; the vertex with an impression in the middle, and a small fovea on each side. Thorax quite as broad as the elytra, rather finely and sparingly punctured, shining black, with a deep channel along the middle, the hind angles entirely rounded. Elytra rather shorter than the thorax, pitchy in colour, less shining than the other parts,

being distinctly alutaceous, with a few fine punctures scattered over them. Hind body shining black, impunctate. Legs yellow, with the femora infuscate.

Four specimens.

168. *Oxytelus crassicornis*, n. sp. Nigro-piceus, elytris pedibusque testaceis, antennis validis, fuscis, basi rufis; mandibulis elongatis, porrectis; capite antice excavato, thorace margine laterali minus evidenter crenulato. Long. 2 lin.

This remarkable insect bears a superficial resemblance in general form to *O. insecatus*; it will probably have to be separated as a distinct genus when *Oxyteli* are properly studied. Antennæ long and stout, gradually thickened from the 4th to the 10th joint, the three basal joints red, the others dusky; from the 4th to the 10th joint, each is a little longer and stouter than its predecessor, the 10th joint about as long as broad. Head slightly broader (in the male?) than the thorax, or slightly narrower (in the female?); the sides very thick and convex, so that the front appears excavated; at the back of this depressed part are two longitudinal elevations; the mandibles are reddish, elongate and conspicuous. The thorax is nearly as broad as the elytra, very transverse; it is punctate-rugose, with two strongly elevated lines along the middle, and also with another rather shorter elevation on each side of these; the elevated parts are smooth and shining, the sides are finely crenulate. The elytra are but little longer than the thorax, pale, shining yellow, rather sparingly and finely punctured. Legs pale yellow, anterior tibiæ long and slender, distinctly narrowed at the extremity.

Three specimens.

169. *Oxytelus lævior*, n. sp. Fusco-testaceus, nitidulus, antennarum basi pedibusque pallide testaceis, elytris testaceis; parcius strigosus, thorace trisulcato. Long. $1\frac{1}{2}$ lin.

An aberrant species of the *sculptus* group. Antennæ rather long, the four basal joints yellow, the others clouded; 1st joint about as long as the four following together, 4th joint very minute, 5th intermediate in size between 4th and 6th, 6—10 about equal to one another, not transverse. Head of a reddish colour, distinctly but not coarsely sculptured, the eyes not reaching to the hinder angles.

Thorax transverse, about as broad as the elytra, a little narrowed behind, of a shining-reddish colour like the head, distinctly trisulcate, the lines bounding the middle groove broad and flat; it is distinctly punctate-strigose at the sides, the sculpture on the middle parts very scanty. Elytra longer than the thorax, of a shining-yellowish colour, sparingly but rather distinctly strigose. The breast is blackish, except that the metasternum at the extremity is red in the middle. The legs are pale yellow, the anterior tibiæ slender, only slightly constricted before the extremity.

In the male there is, on the underside of the 7th segment of the hind body, a small fovea, placed quite at the extremity; the sides of this fovea are a little elevated, and project a little beyond the hind margin.

A single specimen; found at Hiogo.

170. *Oxytelus opacifrons*, n. sp. Testaceus, subopacus, capite fere toto nigro, fronte medio lineolâ impressâ; thorace anguste nigro-marginato, elytris dense subtiliter strigosis, suturâ nigricante. Long. $2\frac{1}{4}$ lin.

Closely allied to *O. nigriceps*, Kraatz, but differing as follows: *O. opacifrons* is not shining, the head is quite opaque and very obsoletely punctured; the lines of the thorax are less elevated, and the elytra much more densely and finely sculptured. The antennæ are yellow, 5th joint larger than 4th, and 6th than 5th; joints 6—10 distinctly transverse, and differing little from one another. Head narrower than the thorax, dull black, the elevations over the antennæ reddish; it is almost impunctate, and has a small fovea or short indistinct channel at the back in the middle. Thorax yellowish, narrowly margined with black, with four indistinct longitudinal elevations; the middle ones entire, the lateral ones abbreviated; it is indistinctly strigose, the elevated parts slightly shining. Elytra yellowish, with the suture black, finely and indistinctly strigose. Hind body dull yellowish, scarcely punctured. Legs pale yellow.

Abundant in dung.

171. *Oxytelus nigriceps*, Kr.

A single specimen.

172. *Oxytelus japonicus*, Mots.

Common in dung, on the sandy coast of Simabara.

173. *Oxytelus cognatus*, n. sp. (*O. sculpturato* peraffinis). Niger, parum nitidus, pedibus testaceis, thorace trisulcato; capite fortiter strigoso, antice sublævi, vertice profunde foveolato. Long. $2\frac{1}{3}$ lin.

Closely allied to *O. sculpturatus*, rather larger and broader than that species, and with the sculpture rather coarser, the impression at the back of the head larger. In the male on the under side the hind margin of the 6th segment is notched in the middle and is distinctly prominent on each side of the notch; otherwise this ventral plate is flat, and presents no trace of the abrupt transverse impression in front of the notch, which is so conspicuous in *sculpturatus*.

Six specimens; found in dung at Nagasaki and Hiogo (no doubt a common species).

174. *Oxytelus vicinus*, n. sp. (*O. sculpturato* affinis). Niger, nitidulus, thorace profunde trisulcato; capite fortiter strigoso, vertice foveolato, antice in mare levigato; pedibus testaceis. Long. 2 lin.

This species is closely allied to *sculpturatus* and *cognatus*. It differs from the former by its more shining head, more coarsely sculptured head and thorax, and by the male characters. From *cognatus* it differs by its rather smaller size, by its more shining surface, more acute thoracic elevations, and by the fact that the male has on the under side of the 6th ventral segment of the hind body a small fovea.

Abundant at Nagasaki.

175. *Oxytelus mimulus*, n. sp. (*O. inusto* affinis). Niger, nitidulus, capite thoraceque punctato-strigosis, illo vertice foveolato, hoc minus profunde trisulcato; elytris fortiter strigosis, pedibus testaceis. Long. 2 lin.

Allied to *O. inustus*, but differs by its more coarsely sculptured head and thorax, the more evidently foveolated vertex, and by the male characters: the thoracic channels too are different, the middle one being more distinct, the lateral ones more indistinct: in this respect it resembles

O. maritimus, from which it differs widely by the sculpture of its elytra. The male has on the under surface of the ventral plate of the 6th segment of the hind body a distinct fovea, the lateral margins of which towards the extremity are a little elevated.

Abundant at Nagasaki.

176. *Oxytelus Lewisius*, n. sp. Rufus, nitidulus, fortiter punctatus, fronte antice profunde transversim impressâ, thorace obsolete trisulcato, tibiis anticis gracilibus, integris. Long. vix 1 lin.

Antennæ yellow, short, greatly thickened towards the extremity; joints 3—5 very small, 6—10 transverse, 9 and 10 distinctly larger than the preceding ones. Head with a very broad and deep transverse impression between the insertion of the antennæ, this part smooth and shining. Thorax very transverse, twice as broad as long, but little narrowed behind, the hind angles rather obtuse but well marked; it is of a shining-yellow colour, rather strongly punctured, in the middle with a broad channel, which is however only visible on the front half, the lateral channels scarcely to be detected. Elytra short but distinctly longer than the thorax, rather coarsely punctured. Hind body impunctate. Legs slender, pale yellow.

A single individual found under bark at Nagasaki.

177. *Oxytelus laticornis*, n. sp. (*O. depressus* affinis). Niger, opacus, pedibus testaceis, subtiliter strigosus; thorace lineis elevatis nitidulis, tibiis anticis integris. Long. 1 lin.

This species closely resembles *O. depressus*, but is not quite so dull as that species; the sculpture of the upper surface, though very similar in character to that of *depressus*, not being quite so fine; the elevated lines on the thorax are distinctly shining, and the antennæ are stouter. Antennæ black, much thickened towards the extremity; 5th joint a little transverse, 6—10 strongly so, 9th and 10th joints particularly large. Head dull, densely and finely strigose, with a very fine fovea on the vertex. Thorax with the central lines well marked and shining, the lateral ones much less distinct but also a little shining. Elytra pitchy black, densely and finely strigose. Hind body distinctly a little shining, very finely punctured. Legs quite yellow.

The male has a strongly elevated line or tubercle on the middle of the ventral plate of the 7th abdominal segment.

Four or five individuals from Nagasaki; probably abundant.

178. *Boreaphilus Lewisianus*, n. sp. Niger, subopacus, dense punctatus, brevissime pubescens; elytris thorace fere duplo-longioribus, antennis palpisque fusco-rufis, pedibus rufis. Long $1\frac{2}{3}$ lin.

This very distinct species is larger than any yet described, and is remarkable on account of its comparatively small head. Antennæ dusky red, very slightly thicker from the base to the extremity; all the joints longer than broad. Head rather broader than the thorax, very densely punctured, the eyes very prominent. Thorax only half as broad as the elytra, much longer than broad, with a projection on each side in front of the middle, very densely punctured. Elytra very long, parallel, very densely punctured. Legs reddish-yellow.

Kobé; one specimen only.

179. *Boreaphilus japonicus*, n. sp. Ferrugineo-testaceus, nitidulus, parcius pubescens; elytris fortiter punctatis, antennis articulis nullis transversis. Long. $1\frac{1}{3}$ lin.

Much allied to *B. Henningianus*, and just about the same size and form, but paler in colour, more shining, more sparingly punctured, the joints of the antennæ longer, the thorax broader, &c. Antennæ yellow, very slightly indeed thickened towards the extremity; all the joints longer than broad. Head large, nearly twice as broad as the thorax, rather sparingly and finely punctured, with two large deep impressions near the front; eyes prominent. Thorax only about half as broad as the elytra, angulated at the sides, abruptly constricted in front of the angulated part, considerably narrower behind it to the base; it is moderately closely punctured, and has a fovea or impression on the disc. Elytra one and a half times as long as the thorax, dilated towards the extremity, coarsely punctured, shining.

Four specimens, found under dead leaves in different localities near Nagasaki.

180. *Lesteva fenestrata*, n. sp. Fusca, nitidula, subtiliter punctata, antennis elongatis basi rufis, elytro singulo basin versus maculâ indeterminatâ rufâ. Long. $1\frac{2}{3}$ lin.

This species is very distinct by reason of the markings of the elytra, and the very long and slender antennæ. In form and sculpture it resembles *L. pubescens*. Antennæ very slender, reaching half-way to the back of the elytra; the two basal joints yellow, the middle ones infuscate, the apical ones a little paler again. Head small, greatly narrower than the thorax, densely punctured, deeply sulcate on each side. Thorax only half as broad as the elytra, broader than long, much narrowed behind, finely and closely punctured, with two ill-defined impressions on the disc, and a third transverse one behind these. Elytra more than twice as long as the thorax, shining, very delicately pubescent, closely punctured, each one with an ill-defined reddish spot near the base. Legs red.

Two specimens. Kawatchi.

181. *Olophrum simplex*, n. sp. Piceum, capite nigricante, thorace elytrisq̄ue flavescens, his sæpius late infuscatis; antennis pedibusq̄ue testaceis, illis medio late infuscatis; elytris thorace duplo longioribus, crebre, minus fortiter, subseriatim punctatis. Long. $1\frac{2}{3}$ —2 lin.

This insect appears to be quite as much allied to *Deli-phrum tectum* as to the species of *Olophrum*, and will probably ultimately have to be assigned to a genus intermediate between the two. The tibiæ are slender and very feebly spined. Antennæ rather slender, longer than head and thorax, scarcely at all thickened towards the extremity, yellowish, the intermediate joints more or less infuscate; 3rd joint rather longer than 2nd, 10th rather longer than broad. Palpi yellow. Head small, not much more than half as broad as the thorax, black, finely and sparingly punctured. Thorax very transverse, much narrower than the elytra; the sides gently rounded, sparingly and rather finely punctuated, shining yellow, with a fovea on each side close to the lateral margin. Elytra elongate, but leaving a large part of the hind body exposed, quite twice as long as the thorax, yellow; the disc generally broadly infuscate, moderately coarsely punctured, the punctures somewhat arranged in rows. Legs yellow. Metasternum coarsely punctured

at the sides; epipleura of elytra broad and very coarsely punctured.

Common at Nagasaki.

182. *Lathrimæum atrocephalum*, Gyll. A single individual only of this species has been found by Mr. Lewis; I should not be surprised at its ultimately proving to belong to a distinct species from the European *atrocephalum*, but I am quite unable to point out any satisfactory character whereby this Japanese example could be distinguished from European ones.

183. *Omalius japonicum*, n. sp. Nigrum, nitidum, antennarum basi pedibusque testaceis, elytris etiam testaceis, thorace medio minus profunde bi-impresso. Long. $1\frac{1}{3}$ lin.

Very closely allied to *O. oxyacanthæ*; rather larger, and a little more coarsely punctured, and in colour more resembling *O. rivulare*. Antennæ red at the base, infusate outwardly, rather short, formed as in *oxyacanthæ*, but rather shorter, and stouter. Mandibles and palpi yellowish. Head small, black, very similar in size, form and sculpture to that of *oxyacanthæ*. Thorax narrower than elytra, very similar in form and sculpture to that of *oxyacanthæ*, the two impressions on the disc rather less deep; it is of a black, or pitchy colour, with the sides behind and the hind margin yellowish. Elytra of a yellowish colour, more than twice as long as the thorax, densely and rather coarsely punctured, but quite shining. Legs entirely yellow, metasternum coarsely punctured.

Found under dead animals at Nagasaki in the month of March.

184. *Anthobium solitare*, n. sp. Rufo-testaceum, scutello, abdomine pectoreque nigris, capite thoraceque subopacis, subtiliter punctatis; elytris sat fortiter punctatis, nitidulis, apice in utroque sexu truncato. Long. $\frac{2}{3}$ —1 lin.

This species resembles *A. torquatum* (*scutellare*, Er.), but is considerably smaller. Antennæ yellow, 3rd joint much more slender than 2nd, but about as long; joints 7—10 transverse, but only slightly so. Head entirely red, alutaceous and therefore dull, finely and sparingly punctured, with a large but ill-defined impression on each

side near the front. Thorax very transverse, quite twice as broad as long, obliquely impressed near the hind angles, alutaceous and dull, finely and sparingly punctured. Scutellum black. Elytra more than twice as long as the thorax, finely but distinctly and closely punctured, of a shining-yellowish colour. Hind body and breast black.

The male is smaller than the female, and has the metasternum foveolated in the middle at the extremity.

Found in the flowers of early spring at Nagasaki.

185. *Megarthus japonicus*, n. sp. Nigricans, leviter nitidulus, antennarum articulo primo pedibusque sordide rufis, thorace ad angulos posteriores exciso. Long. $1\frac{1}{2}$ lin.

This species resembles *M. denticollis*, but is darker in colour, and the structure of the legs in the male is very different. The antennæ are black, with the basal joint of an obscure red colour. The head is dull black, even, only a little depressed on each side near the eyes. The thorax is rounded at the sides near the front angles, without tooth at the sides; the hinder angles abruptly excised in a similar style to that of *denticollis*; the sides are sometimes reddish near the hind angles, sometimes entirely black. The elytra are broad, much dilated from the base to the extremity, densely punctured. The legs are dirty red. In the male the four hinder femora are slightly thickened, the middle tibiæ are simple, but their lower portion is furnished on the inside with a very short and dense black pubescence (not to be perceived without a careful examination); the hind tibiæ are slender, slightly excavate on the inside below the middle.

Abundant.

186. *Megarthus parallelus*, n. sp. Piceus, prothoracis lateribus pedibusque rufis, leviter nitidus; elytris transversim convexis, fortiter punctatis. Long 1— $1\frac{1}{4}$ lin.

A rather narrow and parallel species, with the elytra convex, and very coarsely punctured. Antennæ rather long and slender, pitchy, the basal joint rather darker than the 2nd. Head distinctly impressed on each side near the eyes, the front margin strongly elevated. Thorax pitchy in the middle, the sides broadly red; it is very little rounded at the sides, and but slightly narrowed in front; it presents on each side distinct traces of three teeth, one

near the front angle, one in the middle, and one near the hind angles; it is scarcely excavate at the hinder angles, but as it were obliquely truncate, each angle of the truncated part being a little prominent. Elytra more than twice as long as the thorax, very little broader towards their extremity, very coarsely punctured. Legs yellow.

The male has the legs slender and simple.

Four specimens; found under dead leaves at Nagasaki.

187. *Megarthus convexus*, n. sp. Rufescens, nitidulus, capite prothoraceque disco fuscis, elytris perconvexis, fortiter punctatis. Long. 1 lin.

This very remarkable and distinct species has somewhat the form and appearance of *Epuræa limbata*. Antennæ yellow, gradually thickened from the 7th to the 11th joint; these joints rather darker than the others. Head nearly black, reddish in front, the front margin very strongly elevated. Thorax reddish, with the disc much infusate, broadly explanate at the sides, which are simply rounded. Elytra of a shining-yellowish colour, very strongly punctured, very convex both transversely and longitudinally. Legs yellow.

In the male the middle tibiæ are very slightly thickened on the inner side in the middle, near the extremity a little excavate and curved, the excavate part very finely serrate; the hinder tibiæ are very slightly emarginate above the extremity.

Four specimens; found in the sandy district of Simabara, March 10th, 1870.

188. *Proteinus crassicornis*, n. sp. Piceus, pedibus testaceis, antennis crassiusculis fuscis, basi testaceis. Long. $\frac{2}{3}$ lin.

This species is allied to *P. atomarius*, but is larger, and has the antennæ much stouter, and in the male the front tarsi are distinctly dilated, and the intermediate tibiæ much sinuate. It is slightly smaller than *macropterus*, with the antennæ much stouter, and the front tarsi of the male much shorter. The antennæ are stout, yellow at the base, infusate at the extremity; joints 9—11 of large size. Form and sculpture of thorax and elytra much as in *atomarius*.

In the male the anterior tarsi are short, but much dilated at the base, the middle tibiæ much sinuate internally.

A single individual; found in company with *Omalium japonicum*.

189. *Lispinus longulus*, n. sp. Nigro-piceus, nitidulus, antennis pedibusque rufis, thorace medio subtiliter canaliculato, disco pone medium bi-impresso, lateribus minus discrete impressis, elytris parce punctatis. Long. $1\frac{1}{2}$ lin.

Apparently allied to *L. impressicollis*, or *subopacus*. Antennæ dark red, about as long as head and thorax, but little thickened towards the extremity; joints 6—10 a little transverse. Head finely and sparingly punctured. Thorax broader than long, rounded at the sides and much constricted behind, with a fine but quite distinct channel along the middle, on each side of which the hinder part is impressed, the sides in front of the hinder angles are also broadly depressed, in front of this depression with a kind of elongate indistinct tubercle, it is rather sparingly and coarsely punctured, and has a dull greasy kind of lustre. Elytra longer than the thorax, sparingly, moderately finely punctured, the base inside the humeral angle distinctly impressed. Extremity of hind body reddish. Legs yellow.

Found in damp vegetable refuse; especially fond of decaying cabbage-stumps.

190. *Micropeplus fulvus*, Er. var. *japonicus*. Specimens of a *Micropeplus* brought back by Mr. Lewis are larger and much broader than our European *fulvus*, and have the marginal line of the head more strongly elevated. I am unable however to find another character to distinguish them, and as these Japanese individuals vary in colour in a similar manner to our *fulvus*, and as the male characteristics are quite the same in the two, I have decided to treat the Japanese form as only a variety of the European *fulvus*.

Abundant in rubbish heaps.

LIST OF SPECIES.

ALEOCHARINI.

- Falagria simplex, n. sp.
 sapida, n. sp.
 fovea, n. sp.
 Santhota (n. g.) sparsa, n. sp.
 Ocalea japonica, n. sp.
 Thiasophila rufescens, n. sp.
 Homœusa japonica, n. sp.
 Microglotta princeps, n. sp.
 Aleochara parens, n. sp.
 discoidea, n. sp.
 claviger, n. sp.
 japonica, n. sp.
 puberula, Klug.
 præsul, n. sp.
 peregrina, n. sp.
 fucicola, n. sp.
 Myrmedonia comes, n. sp.
 cognata, Märk. var.?
 socius, n. sp.
 Ilyobates pictus, n. sp.
 Tachyusa rufescens, n. sp.
 algarum, n. sp.
 Oxypoda japonica, n. sp.
 proba, n. sp.
 Homalota transfuga, n. sp.
 melanaria, Sahl.
 Lewisa, n. sp.
 distans, n. sp.
 vivida, n. sp.
 Deinopsis modestus, n. sp.

TACHYPORINI.

- Tachinus mimulus, n. sp.
 Cilea silphoides, Lin.
 Coproporus sp.?
 Tachyporus celatus, n. sp.
 Conurus germanus, n. sp.
 pumilus, n. sp.
 pedicularius, Grav.?
 Megacronus setiger, n. sp.
 princeps, n. sp.
 Bryoporus Lewisius, n. sp.
 Bolitobius japonicus, n. sp.

QUEDIINI.

- Heterothops cognatus, n. sp.
 Rientis (n. g.) parviceps, n. sp.
 Algon (n. g.) grandicollis, n. sp.
 Velleius dilatatus, Fab.
 pectinatus, n. sp.
 Quedius Juno, n. sp.
 simulans, n. sp.
 lateralis, Grav.
 parviceps, n. sp.
 japonicus, n. sp.

- Quedius pretiosus, n. sp.
 Lewisius, n. sp.

STAPHYLININI.

- Creophilus maxillosus, Lin.
 Leistotrophus gracilis, n. sp.
 oculatus, n. sp.
 Encibdelus japonicus, n. sp.
 Staphylinus paganus, n. sp.
 inornatus, n. sp.
 subæneus, n. sp.
 Goërius carinatus, n. sp.
 Ocy pus Lewisius, n. sp.
 parvulus, n. sp.
 gloriosus, n. sp.
 Phucobius (n. g.) simulator, n. sp.
 Philonthus nudus, n. sp.
 vestitus, n. sp.
 histrio, n. sp.
 mimulus, n. sp.
 algarum, n. sp.
 quediodes, n. sp.
 spinipes, n. sp.
 japonicus, n. sp.
 parvus, n. sp.
 macies, n. sp.
 germanus, n. sp.
 rectangulus, n. sp.
 Lewisius, n. sp.
 solidus, n. sp.
 mutans, n. sp.
 agilis, Grav.
 scybalarius, Nord.
 quisquiliarus, Gyll.
 ———, var. rubi-
 dus, Er.
 thermarum, Aubé.
 egeus, n. sp.
 sericans, n. sp.
 amicus, n. sp.
 prolatus, n. sp.
 kobensis, n. sp.
 rutiliventris, n. sp.
 gastralis, n. sp.
 tiro, n. sp.
 pumilus, n. sp.

XANTHOLININI.

- Othius rufipennis, n. sp.
 medius, n. sp.
 latus, n. sp.
 Xantholinus japonicus, n. sp.
 suffusus, n. sp.
 mixtus, n. sp.
 pleuralis, n. sp.
 Leptacinus flavipennis, Kraatz.
 Xanthophyus angustus, n. sp.

PÆDERINI.

- Lathrobium digne*, n. sp.
nudum, n. sp.
partitum, n. sp.
anguinum, n. sp.
Kobense, n. sp.
scabripenne, n. sp.
stillicoides, n. sp.
crassicorne, n. sp.
Cryptobium apicatum, n. sp.
pectorale, n. sp.
japonicum, n. sp.
Stilicus ceylanensis, Kraatz.
rufescens, n. sp.
Scopæus complex, n. sp.
virilis, n. sp.
lithocharoides, n. sp.
basicornis, n. sp.
Lithocharis spectabilis, Kraatz.
staphylinoides, Kraatz.
debilicornis, Woll.
Lewisia, n. sp.
prolixa, n. sp.
parviceps, n. sp.
dissimilis, n. sp.
Acanthoglossa (?) *setigera*, n. sp.
Mesunius (n. g.) *Wollastoni*, n. sp.
Neognathus (n. g.) *angulatus*, n. sp.
Sunius latifrons, n. sp.
histrion, n. sp.
brevipes, n. sp.
oculatus, n. sp.
bicolon, n. sp.
suffusus, n. sp.
chloroticus, n. sp.
Pæderus Poweri (Lewis.), n. sp.
mixtus, n. sp.
Idæ (Lewis.), n. sp.
Cedichirus Lewisius, n. sp.
Idæ (Lewis.), n. sp.
Pinophilus insignis, n. sp.
Lewisius, n. sp.
rufipennis, n. sp.

STENINI.

- Evæsthetus nitidulus*, n. sp.
Stenæsthetus (n. g.) *sumioides*, n. sp.
Stenus tennipes, n. sp.
alienus, n. sp.
verecundus, n. sp.
Lewisius, n. sp.

- Stenus macies*, n. sp.
puberulus, n. sp.
japonicus, n. sp.
sexualis, n. sp.
rugipennis, n. sp.
cicindela, n. sp.
hirtellus, n. sp.
oblitus, n. sp.
dissimilis, n. sp.
rufescens, n. sp.
currax, n. sp.

OXYTELINI.

- Oxyporus angularis*, Gebl.
Osorius angustulus, n. sp.
Bledius fragilis, n. sp.
lucidus, n. sp.
orphanus, n. sp.
Platysthetus operosus, n. sp.
Oxytelus crassicornis, n. sp.
lævior, n. sp.
opacifrons, n. sp.
nigriceps, Kraatz.
japonicus, Mots.
cognatus, n. sp.
vicinus, n. sp.
mimulus, n. sp.
Lewisius, n. sp.
laticornis, n. sp.

OMALINI.

- Boreaphilus Lewisianus*, n. sp.
japonicus, n. sp.
Lesteva fenestrata, n. sp.
Olophrum simplex, n. sp.
Lathrimæum atrocephalum, Gyll.
Omalium japonicum, n. sp.
Anthobium solitare, n. sp.

PROTEININI.

- Megarthrus japonicus*, n. sp.
parallelus, n. sp.
convexus, n. sp.
Proteinus crassicornis, n. sp.

PIESTINI.

- Lispinus longulus*, n. sp.

MICROPEPLINI.

- Micropeplus fulvus*, Er. *var. japonicus*.

II. *The Pselaphidæ and Seydmanidæ of Japan.*

By DAVID SHARP, M.B.

[Read 5th January, 1874.]

IN continuation of the work of making known the Coleoptera of Japan, I have now the pleasure of submitting to the Society the descriptions of the species of Pselaphidæ and Seydmanidæ, brought by Mr. Lewis from that locality. Twenty-four species of Pselaphidæ, and five species of Seydmanidæ are described in this paper, and all of this number are treated as previously undescribed, not a single species of either family having been previously described as inhabiting the Japan islands. The number of species of these groups, however, inhabiting the islands will be found, I have no doubt, to be much greater than the figures given above; Mr. Lewis tells me that he made no special search for these insects, and only captured such specimens as he met with incidentally while collecting or walking. I may mention that there is a specimen, apparently belonging to the genus *Pselaphus*, among Mr. Lewis's captures, but it is too mutilated to describe; and that he possesses also four or five other specimens of Seydmanidæ, apparently representing as many distinct species, but which I have not thought it advisable to attempt to describe from these specimens alone.

The Pselaphidæ of Japan appear to present even a greater resemblance to those of North America than to those of Europe. The occurrence of a species of *Tmesiphorus*, and the comparative predominance of *Batrissi*, are the main facts which lead me to make this statement. We know little or nothing of the Pselaphidæ of North-Eastern Asia, so that no comparison can be made with them, but it is highly probable that a large proportion of the species here described occur in the neighbouring parts of the Asiatic mainland; while the Pselaphidæ of Europe present so great a resemblance to those of North America, that it is clear to me that they should be studied in connection with one another. Indeed, I may take this opportunity of expressing my regret that many entomologists of repute

limit themselves to the study of the insects of a particular locality; for it appears to me it would be more advantageous to science if the studies of each specialist were limited to special groups rather than to the dwellers in a particular locality. The entomologists of North America in particular have hitherto almost entirely confined their studies to the insects of their own part of the world; they have I think been wise in so doing, but I cannot but think that the time has now come for them to extend their studies; and I take this opportunity, therefore, of expressing my concurrence in the opinions enunciated on this point by MM. de Borre and Putzeys at the meeting of the Entomological Society of Belgium, held on the 8th November last.

PSELAPHIDÆ.

LASINUS, nov. gen.

Maxillary palpi small, probably 4-jointed, but the first joint not observed; 2nd joint rather curved, narrow at its base; 3rd joint shorter than the contiguous ones, longer than broad, its sides rounded, its base narrow; 4th joint slender, ovate, terminating in an acute point. Head much produced over the insertion of the antennæ, the produced part obtuse in front, and with an indication of a longitudinal division. Antennæ eleven-jointed, not quite contiguous at their point of insertion; long, and stout, the 1st joint elongate, the intermediate joints oblong, the three apical joints forming a narrow elongate club. Eyes convex, coarsely granulated. Thorax rounded at the sides, without angles or projections. Legs very long. Intermediate coxæ not contiguous. Tarsi three jointed, third joint shorter than 2nd; claws two, small, equal. Hind body on the upper side with five, on the underside with six visible segments.

I think that at present this genus would be best placed near the North American genera, *Cedius*, *Ceophyllus* and *Tmesiphorus*, from which, however, the Bryaxis-like form of the maxillary palpi abruptly distinguish it. I think, however, that the classification of the Pselaphidæ at present in use much requires revision.

1. *Lasinus spinosus*, n. sp. Rufo-fuscus, antennis pedibusque obscure rufis; pube adpressâ vestitus; capite pro-

thoraceque dense strigoso-punctatis; elytris abdomineque simpliciter punctatis. Long. $1\frac{1}{2}$ lin.

Antennæ long and rather stout, reaching to about the end of the elytra, reddish in colour, 1st joint as long as the three or four following together, 2—8 each longer than broad, the 8th a little broader than its predecessor, 9—11 of about similar breadths, 9 rather longer than 10, its upper angle on the inner side a little sliced off and smooth, 11th joint but little longer than 9th. Head narrower than the thorax, densely strigose, with three small foveæ filled up with pubescence, the front one placed in the middle at the base of the produced front, the others, one on each side between the eyes. Thorax only about half the width of the elytra, rather longer than broad, convex both transversely and longitudinally, densely strigose, in the middle with a fine channel, and also with three very small foveæ filled with pubescence. Elytra scarcely longer than the thorax, broader at the extremity than at the shoulders, rather coarsely but indistinctly and not densely punctured, each with a sutural and discoidal stria, these furnished at the base with a small fovea filled with pubescence; their hind margin densely pubescent. Hind body very strongly margined, and distinctly punctured. Legs elongate; anterior trochanters with a long slender spine, middle ones with a shorter, but very distinct spine, hind trochanters not spined; anterior and middle femora also spined in a manner similar to the trochanters.

Nagasaki. Three specimens, near decayed leaves in the wood of Suwo-sama.

The preceding description is, I have but little doubt, applicable only to the male sex. Mr. Lewis has another specimen, not taken with those mentioned above (apparently), but which I have but little doubt is the female. It differs as follows:—Antennæ rather more slender, 8th joint not larger than the predecessors, 9th joint more slender than in the other sex, simple; spines of the trochanters much shorter.

2. *Centrotoma prodiga*, n. sp. Castanea, setulis brevissimis, erectis, adspersa; prothorace transverso; antennis pedibusque minus elongatis. Long. fere 1 lin.

Antennæ short, joints 3—9 scarcely differing from one another, transverse, joint 10 a little broader than 9, also transverse, 11th rounded at its extremity, twice as long as the 10th. Head with two small foveæ on the vertex, and

with the produced front part longitudinally impressed. Thorax small, transverse, much narrower than the elytra, about as broad as the head (with the eyes), with a central basal fovea filled with pubescence. Elytra short, but much longer than the thorax, each with well-marked sutural and discoidal striæ; they are much broader at the apex than at the base. Hind body rather elongate, 1st, 2nd and 3rd (visible) segments on the upper side, differing but little in length from one another. Trochanters elongate; the middle ones abruptly dilated in their apical portion and about two-thirds of the length of the short and stout femora.

A single specimen, of whose sex I am uncertain.

Though I am unacquainted with the *Centrotoma lucifuga* of Heyden, it is evident to me, from the figure and description of Duval (Gen. i., pl. 43, f. 213), that this most remarkable Pselaphid is not, if not actually congeneric with *C. lucifuga*, allied thereto. It differs from Duval's figure, by its much shorter antennæ, by its differently-shaped thorax, and by the larger joints of its maxillary palpi; these however being apparently similar in structure to *C. lucifuga*.

Nagasaki.

STIPESA, nov. gen.

Antennæ 11-jointed, short and stout, their extremity remarkably stout; nearly contiguous at their point of insertion. Head forming over the insertion of antennæ a distinct tubercle, this having traces of a longitudinal division. Eyes small. Maxillary palpi small and slender (1st joint unobserved), 2nd very curved, slender at base, gradually thickened from the middle to the extremity; 3rd much shorter than the contiguous joints, continuous in outline with 2nd, about as long as broad, furnished externally at its upper margin with a small hair-like process; 4th stouter than 3rd, oval and pointed, furnished externally about the middle with a minute process. Hind body with five visible dorsal segments, the 5th (or pygidium) small and inflexed, the two basal segments with a thick but obscurely elevated margin. Anterior trochanters short, middle ones elongate. Hind coxæ extremely distant. Tarsi rather long, 3-jointed, 3rd joint longer than 2nd; claws small, but little curved, the outer shorter and finer than the inner.

A most remarkable insect, without close relationship to any known to me; its systematic position appears very

doubtful, but it may be placed at present next to *Metopias*, and be considered to connect that genus with the remote *Ctenistes*. My description of the maxillary palpi must be interpreted with some discretion, as I am unable to observe them in a satisfactory manner.

3. *Stipesa rudis*, n. sp. Castanea, opaca, setulis brevissimis adpressis vestita. Long. $\frac{2}{3}$ lin.

Antennæ reddish, 1st joint stout, twice as long as 2nd; 2nd scarcely so stout as 1st, about as long as broad; 3rd shorter than and not so broad as 2nd, 4—8 extremely short and transverse, not differing from one another; 9th abruptly larger than 8th, transverse; 10th strongly transverse, intermediate in width between 9 and 10; 11th joint very large, its extremity rather pointed at the inner side. Head rather narrower than thorax, obsolete but densely punctured so as to be quite opaque, with indistinct traces of two foveæ on its disc. Thorax scarcely so long as broad, without projections or distinct angles, narrowed from the middle to the front, and nearly straight from the middle to the hind margin; it is quite dull, its sculpture being similar to that of the head. Elytra short, but longer than the thorax, not so dull as head and thorax, with obscure sutural and discoidal striae. Front tibiae with their lower half a little bent outwards: four posterior tibiae bisinuate, the middle ones only obscurely, but the posterior distinctly so.

A single individual. Suwo-sama, Nagasaki.

4. *Tmesiphorus speratus*, n. sp. Rufo-testaceus, capite prothoraceque dense sculpturatis, opacis, elytris obsolete punctatis, sat nitidis; abdominis segmentis dorsalibus duobus basalibus versus latera carinatis, medio mutico. Long. vix 1 lin.

Nearly as large as *T. carinatus*, Lec. Antennæ similarly formed to those of *T. carinatus*, but shorter and stouter (my only specimen of *carinatus* is a female, while the individual of *T. speratus* I am describing is clearly a male); 2nd joint short and stout, scarcely so long as broad; 3rd joint short, but scarcely so short as the following ones; 4—8 very short, especially the 8th; 9th abruptly broader than 8th; 10th longer, and a little broader than 9th; 11th joint very stout, its lower and inner angle excised, and above this excision it is obscurely swollen or tuberculate.

Head densely but indistinctly punctured, opaque; the vertex bifoveolate, and the front part also foveolate. Thorax shorter than that of *T. carinatus*, not so long as broad, the sides rounded in front and narrowed behind, without distinct margin: it is quite dull, its sculpture being similar to that of the head. Elytra rather longer, and much broader than the thorax, finely and obscurely punctured, rather shining, with a fine sutural stria and a discoidal plica (as in *T. carinatus*). Hind body finely and sparingly punctured, formed as in *T. carinatus*; the dorsal segments, however, without any central line, but the first and second segments with an elevated line half-way between the middle and the lateral margin. The front tibiæ much curved inwards.

Maiyasama, Hiogo; a single specimen.

The affinities of this insect with *T. carinatus* are very marked. It possesses, however, some evident distinctions, which at the same time are not of such a nature as have, as yet, been considered of generic importance in the Pselaphidæ. The most important of these appears to be the structure of the 3rd joint of the maxillary palpi, which is broader and shorter than in *T. carinatus*, and angulated externally. These organs, in fact, depart less widely from the *Ctenistes* structure than do those of *Tmesiphorus carinatus*. The *Ctenistes integricollis* of Fairmaire appears to supply a connection between the ordinary species of *Ctenistes* and *Tmesiphorus*. While, again, I possess a Pselaphid from Algeria (sent in error by Olces as the *C. integricollis*, Fairm.), which in the structure of its palpi appears intermediate between *T. carinatus* and *speratus*; but from other differences this Algerian insect will necessitate the establishment of a new genus for its reception.

5. *Ctenistes oculatus*, n. sp. Rufescens, gracilis, oculis maximis, antennis pedibusque elongatis, tibiis basi gracillimis. Long. $\frac{7}{8}$ lin. ♂.

Fem. adhuc latet.

Antennæ about the length of the insect, 1st joint with about half its length projecting beyond the frontal process, 2nd joint not quite so long as the exposed portion of the basal joint, 3—7 extremely small, 8th joint elongate, quite as long as 1—7 together; 9th joint about two-thirds of the length of 8th, 10th larger than 9th, 11th about as long as 10th, a little curved. Head with the foveæ extremely indistinct, the eyes very large, prominent and coarsely

faceted. Thorax rather slender, narrowed to the front, about as long as broad, clothed with whitish hairs, and with a dense patch of these at the base in the middle. Elytra nearly twice as long as the thorax: the basal four dorsal segments of hind body sub-equal in length. Legs very long, tibiæ extremely slender, but distinctly thickened at their apex.

A single specimen only of this very distinct species has been brought back by Mr. Lewis.

6. *Ctenistes armatus*, n. sp. Rufescens, nitidus, oculis minoribus. Long. 1 lin.

Mas, metasterno medio utrinque processu angulato, valde elevato instructo; antennis articulo 8°, 7° haud duplo longiore.

♂. Antennæ about as long as the head, thorax and one-third of elytra; 1st joint stout, projecting much beyond the front; 2nd joint stout, but more slender than 1st, only half as long as 1st, about as long as broad; 3rd joint more slender than, but about as long as the 2nd; 4th intermediate in length between 3 and 5, about as long as broad; 5 and 6 small, but not strongly transverse; 7 about twice as long as 6, and as long as broad, 8 longer than broad, not twice as long as 7; 9th nearly as long as 7 and 8 together; 10th rather stouter, but not longer than the 9th; 11th joint longer than any of the others, pointed at its extremity. Head with two foveæ, separated only by a narrow space between the eyes. Thorax about as long as broad, narrowed towards the front, elytra shining reddish, longer than the thorax.

Nagasaki. A single specimen.

Mr. Lewis has also brought a female *Ctenistes* which I believe to be the female of *C. armatus*; it has the metasternum deeply impressed, but not armed: the 3rd joint of its antennæ is much more slender and slightly longer than the 2nd; joints 4, 5 and 6 each a little shorter than the one preceding it, 6th about as long as broad, 7th about twice as long as 6th, 8th very small, 9th scarcely so long as, but stouter than the 7th; 10th stouter than 9th, about as long as 7th; 11th joint stout, nearly twice as long as 10th.

A single specimen.

7. *Ctenistes medius*, n. sp. Rufescens, nitidus. Long. 1 lin.

Mas, metasterno medio utrinque tuberculo angulato,

elevato instructo; antennis articulo 8°, 7° quadruplo longiore, 3°, 4° evidenter longiore.

This species (so far as knowledge of the male will justify me in speaking) strongly resembles *C. armatus*; the pectoral processes are, however, less strongly developed, and the structure of the antennæ very different; the 2nd joint is very short, the 3rd also very short, but more slender than 2nd, it differs but little from the 4th; joints 4—7 are small and differ but little from one another; the 8th joint nearly as long as the four preceding ones together, 9th very nearly as long as and slightly stouter than the 8th; 10th just about as long as, but distinctly stouter, than 8th; 11th joint distinctly longer and stouter than 10th.

A single specimen. Fukuhora, Nagasaki.

Mr. Lewis has also brought back a female *Ctenistes*, which I think may prove to be the female of *C. medius*. It greatly resembles the insect which I suppose may be the female of *C. armatus*. It has, however, the antennæ markedly shorter than the *C. armatus* (?) ♀; the proportions of the joints to one another, however, being much about the same as in that insect, except that the 8th is strikingly shorter, so that its development is not so disproportionate to that of the contiguous joints as it is in *C. armatus* (?) ♀.

8. *Ctenistes similis*. Rufescens, nitidus. Long. 1 lin.

Mas, metasterno medio utrinque tuberculo angulato, elevato, instructo; antennis articulo 8°, 7° triplo longiore, articulo 3°, 4° duplo longiore.

This species differs apparently from *C. medius* only by the greater elongation of the intermediate (3—7) joints of the antennæ; the 3rd joint is quite twice as long as the 4th; and the 7th is not quite so short in proportion to the 8th, as is the case in *C. medius*. Whether these points are more than individual variations, I must leave till the arrival of more sufficient materials to determine.

Nagasaki; a single specimen.

There is yet another individual of *Ctenistes* among Mr. Lewis's material, but as there is only a single ♀ specimen. I shall not allude to it further than to say that I am very doubtful whether it can be referred to either of the above described species; it is from Nagasaki.

9. *Batrismus optatus*, n. sp. Brevior, rufo-castaneus, nitidus, antennis minus validioribus, prothorace cordato.

impunctato, medio canaliculato, lateribus impresso; elytris fortiter minus crebre punctatis. Long. $\frac{3}{4}$ lin.

Mas (?), abdomine segmento primo dorsali, medio deformi, apice tuberculo compresso valde elevato instructo.

Antennæ moderately long, rather slender; 1st joint short, 2nd joint about as long as exposed portion of 1st, but more slender; 3rd joint shorter and thinner than 2nd, joints 3—8 differing little from one another; joints 9—11 forming an elongate club, the individual joints of which are much divided from one another. Eyes prominent, rather large. Head, including the eyes, scarcely so broad as the thorax, impunctate and shining, with a small fovea on each side near the eyes; it is elevated on each side over the insertion of the antennæ, between the elevations rather depressed and roughened. Thorax scarcely so long as broad, greatly narrowed behind, with a small fovea on each side, near the front margin; the middle deeply channelled, and there is also a longitudinal impression near each side, these connected by a transverse impression placed very near the base. Elytra longer than the thorax, with the humeral angles prominent, sparingly but distinctly and coarsely punctured, each with a sutural stria and a short basal stria in the middle. The legs are long, the tibiæ slender, the hind femora with the basal half very slender, and the apical half abruptly incrassated.

Nagasaki; a single specimen. I believe it to be a male on account of the very peculiar structure of the hind body. The basal dorsal segment is elongate, furnished in the middle with a narrow, curved, transverse depression; this is limited behind by a sharply elevated line, and also obscurely divided into two parts by a small elevation in its middle; beyond this impression the segment is profoundly impressed, and from the depth of the impression projects a very large, laterally compressed tubercle; the lateral portions of the segment are a little flattened and dilated, and have a peculiar roughened (glandular) surface. The following segments are so inflexed as to be invisible from above: seen from behind the 2nd and 3rd are extremely short, while the two last (4th and 5th) are moderately and about equally long: the segments on the under surface are reduced to mere rings.

10. *Batrisus angustus*, n. sp. Elongatus, angustus,

rufescens, abdomine piceo; elytris obscure sanguineis, evidenter punctatis. Long. 1 lin.

Allied to the European *B. venustus*, yet very distinct therefrom; it may be at once distinguished from it by the evident characters of its narrower form, darker colour, and distinctly punctured elytra. Antennæ reddish, slender, but with the basal joint very stout: 2nd joint short, joints 3—8 slender, not differing greatly from one another, the 5th joint the most slender, longer than broad; 9th joint distinctly but not abruptly broader than 8th, 10th intermediate in width between 9th and 11th; 11th joint pointed, a little sinuate on the upper portion of the inner side, rather longer than the two preceding together. Head with two well-marked convergent furrows on the vertex, the part enclosed by these distinctly raised; the sides outside them much raised, especially in the front over the insertion of the antennæ. Eyes moderately large. Thorax much narrower than the elytra, rather longer than broad, rounded at the sides and narrowed behind, with a deep channel on the disc, a fine impressed line on each side, and between this and the central channel with a distinct raised line on each side, and with an angulated transverse impression in front of the base. Elytra red, longer than the thorax, distinctly but rather distantly punctured, each with a fine sutural stria, and a well-marked humeral impression, this being bounded on the inner side by a fine short plica. The first dorsal segment of hind body as long as the two following together. The femora distinctly swollen in the middle, the hind tibiæ with a short but distinct apical spine.

A single specimen without locality. Notwithstanding its slender and slightly-clubbed antennæ, I am inclined to fancy it is a male.

11. *Batrisus ornatus*, n. sp. Rufescens, evidenter pubescens, antennis sat validis, vertice impunctato subtiliter carinato, tuberculis antennalibus valde elevatis, punctatis, fronte medio depressiusculo; elytris fere impunctatis; tibiis posticis calcarî apicali longo. Long. 1 lin.

Mas, antennis articulo basali elongato, angulo interno in laminâ producto, clypeo antice medio elevatione latâ; metasterno late impresso, abdomine segmento apicali ventrali basi bituberculato.

Fem., antennis articulo basali brevior, simplice; clypeo mutico, metasterno apice medio foveolato, abdomine segmento apicali, basi impresso.

This species is of an obscure reddish colour, and clothed with a rather long, not very dense pubescence, which appears to be easily removed. The antennæ moderately stout, the basal joint long, and very stout; 2nd joint short but distinctly longer than the third; 3—8 differing very little from one another, bead-like; 9th similarly formed to 8th, but distinctly stouter; 10th rather stouter than 9th; 11th joint rather large, pointed. Head quite as broad as the thorax, the vertex impunctate, with a fine raised line along the middle, and an ill-defined fovea on each side; the antennal tubercles well separated from one another, strongly elevated and rough; a very fine line runs from the hind angle to the base of these tubercles. Thorax not punctured, with a central channel; the disc on each side of this with a fovea from which proceeds a short but acutely elevated line, and also with the sides deeply foveolate. Elytra longer than the thorax, scarcely punctate, each with a sutural stria and a central one reaching about half-way to the extremity. First dorsal segment of hind body about as long as the two following together. Legs rather long and stout, the hind tibiæ much curved.

Fukuhora, Nagasaki; four specimens.

12. *Batrisus stipes*, n. sp. Rufo-brunneus, eviderter pubescens, capite crassiusculo, rugoso, opaco; prothorace disco spinis quatuor recurvis armato. Long. 1 lin.

This species is remarkable from the structure of its head, which is thickened and produced in front between the antennæ, hence the antennal tubercles have almost disappeared, and the two convergent vertical furrows are also obsolete; its whole upper surface is opaque and finely sculptured, the eyes are small and pubescent. The antennæ are moderately stout, the first joint short and stout, joints 2—8 differing little from one another; 9th distinctly thicker than 8th; 10th similar to 9th, but a little broader; 11th joint stout and pointed, quite as long as the two preceding together. Thorax not punctured, with a fine central channel, which is foveolate at its base, deeply foveolate at the sides, and armed on the disc with four small distant spines placed to form a square (these are best seen when the insect is viewed from the side). Elytra rather longer than the thorax, scarcely punctured, but with distinct pubescence, each with a fine sutural stria, and a short middle stria, the humeral angles but little prominent. The first dorsal segment of hind body about as long as the two following together.

The legs rather stout, the hinder tibiæ with a rather long apical spur.

Two specimens; they resemble one another in all respects, and I fancy they are females.

13. *Batrisus dissimilis*, n. sp. Rufo-castaneus; capite rugoso, profundius transversim bi-impresso; antennarum articulo primo incrassato; prothorace fortiter punctato; abdomine segmento primo dorsali elongato, secundo tertioque brevissimis. Long. 1 lin.

Allied to *B. modestus*, but twice the size, with the head deeply impressed, the antennæ stouter, &c. It departs, however, in comparison with *B. modestus*, but little from the facies of the ordinary *Batrisi*. Antennæ moderately stout, the first joint short, and very stout, it being as it were thickened on its hinder side; 2nd joint rather short, 3rd joint a little longer and distinctly stouter than 2nd, 4—8 differing but little from one another, rather slender; the 7th, however, considerably more developed than the contiguous ones; 9th and 10th joints broader than the preceding ones but still slender; 11th joint broader than the others, scarcely so long as the 9th and 10th together. Head rugosely but indistinctly sculptured, dull, with a deep transverse impression on the front part divided into two by an elevation in its middle; with a small fovea on each side close to the hind margin. Thorax cordate, about as long as broad, rather coarsely and closely punctured, except the projecting sides, which are smooth and shining; it has a central channel, and also a line on each side separating the smooth side from the disc. The elytra are convex, with the humeral angles rather rounded, each with a moderately well-marked middle stria not extending to their extremity, and with a distinct sutural stria. The hind tibiæ are without apical spur.

Maiyasama, Kobé: three specimens, two of which, however, have unfortunately lost the hind body; they are all similar, and possibly males; if so, the female would probably have more slender antennæ.

14. *Batrisus modestus*, n. sp. Castaneus, antennis pedibusque gracilibus, capite prothoraceque fortiter dense punctatis; abdomine segmento primo valde elongato. Long. $\frac{3}{4}$ lin.

This little species is intermediate in facies between

Batrisus and *Euplectus*. The antennæ are slender, slightly longer than head and thorax, the basal joint very short, not concealed, stout; 2nd joint short, about as long as the first; joints 3—8 slender, the 8th smaller than the 7th; 9 and 10 larger than the preceding ones but still slender; 11th joint stouter than the others, moderately large, pointed. Head rather short and broad, with the eyes about as broad as the thorax; it is dull, being closely and coarsely punctured. The antennal tubercles are small, and there is a transverse line connecting them. Thorax small, much narrower than the elytra, scarcely so long as broad, rounded at the sides and much narrowed behind; it is, like the head, coarsely punctured, except the projecting sides, which are smooth and shining; it is channelled along the middle, obscurely impressed in front of the base, with the smooth side parts separated from the disc by a fine line. Elytra rather longer than the thorax, a little inflated, the humeral angles rounded, almost impunctate, each with a fine sutural stria, and a strongly marked central stria, this, however, not reaching quite to the extremity. The hind body is quite unmargined, the first segment elongate, about two-thirds as long as the elytra, the two following segments very short: the first segment beneath is also elongate. The legs are rather long and slender, the tarsi (especially the hind ones) particularly slender.

Nagasaki; two specimens.

In one of these the antennæ is considerably stouter than the other, this is no doubt the male. The species will probably ultimately be separated as a distinct genus from *Batrisus*.

MORANA, nov. gen.

Of a short, broad, subdepressed form. Antennæ distant at point of insertion, 11-jointed, the apical joint very large in proportion to the others. Maxillary palpi not observed but certainly small, and probably without important characters. Hind body margined on the dorsal surface with only four visible segments, the 1st of these elongate, the 2nd rather short, the 3rd still shorter, the last forming the pygidium, moderately long; on the under-surface with five visible segments, the first very elongate, the three following ones extremely short and compressed, the fifth short. Legs with the tibiæ laterally compressed, the tarsi rather short and stout, 3rd joint shorter than 2nd, with two equal unguiculi; the posterior coxæ slender and not

projecting backwards, moderately distant from one another.

The above incomplete characters are all I am able to see in the single specimen of this minute *Pselaphid*: they seem, however, quite sufficient to justify the establishment of a distinct genus for it, the place of which may be for the present between *Bryaxis* and *Trichonyx*. I have quite failed to get any view of the palpi; and have not obtained a very satisfactory one of the unguiculi, but I think I am right in saying that these are two in number, and equal, at any rate, on the intermediate feet.

15. *Morana discedens*, n. sp. Castanea, nitida, subglabra, antennis pedibusque testaceis, elytris rufescentibus; tibiis, præsertim posticis, evidentè curvatis. Long. $\frac{1}{2}$ lin.

This curious insect looks at first sight like the front parts of an *Euplectus*, with the hind body of a *Bryaxis* attached. The antennæ are shorter than the head and thorax, the basal joint moderately long, but extremely stout, the 2nd joint peculiarly elongate, cylindric, rather stouter than the following ones; joints 3—9 small, differing little from one another; 10th joint transverse, much broader than the 9th joint, but very small in comparison with the 11th joint, which is very large, stout, and pointed, about as long as the four preceding together. Head, subtriangular, with the eyes about as broad as the thorax, the front over the mouth acuminate and elevated; it is acutely elevated on each side over the insertion of antennæ, and much depressed between these; the vertex convex, smooth and shining. Thorax much narrower than the elytra, rather strongly transverse, distinctly narrowed behind, impunctate, uneven at the base in consequence of some deep but obscure depression, and with a fovea on each side close to the margin and near the base. Elytra rather short in proportion to their width, but longer than the thorax, shining red, impunctate, with a strongly marked sutural stria, without a middle stria, but with a fovea at the base in the middle. Legs rather short, the tibiæ thin at the base, dilated at the extremity; the hind pair larger than the others, and strongly curved inwards towards their extremity.

A single specimen. Nagasaki.

16. *Bryaxis princeps*, n. sp. Rufescens, nitidus, pubescenti parcius vestitus; vertice profunde bifoveolato; prothorace trifoveolato, foveolis lineâ arcuatâ connexis; ely-

trorum epipleuris, lineâ profundâ impressâ basi apiceque abbreviatâ. Long. $1\frac{1}{4}$ lin.

Mas, tibiis anticis deformibus, intus supra medium dente armatis; trochanteribus anterioribus spinosis, trochanteribus intermediis breviter dentatis; femoribus intermediis summo basi spinosis, tibiis intermediis unco valido; metasterno late transversim impresso; abdomine segmento 2° ventrali, apice laminâ transversâ, erectâ, fissâ, segmento quinto foveâ maximâ insignis.

Antennæ longer than head and thorax, 3rd joint longer than 2nd, 5th longer than the contiguous ones; 8th joint small, 9th larger than 8th, transverse; 10th longer and broader than 9th, also transverse; 11th joint very large, armed on the inside at the base with a small tubercle, (not very easily perceived). Head impunctate, with two large foveæ on the vertex, the front between the insertion of the antennæ depressed. Thorax about as long as broad, convex, distinctly narrowed behind, furnished with three foveæ, connected by a line, impunctate, except that there are indistinct traces of punctuation near the lateral foveæ. The elytra are rather brighter red than the rest of the insect, each has a well marked sutural stria which is deeply impressed at the base, and with a second stria between this and the shoulder; this stria is well marked, deeply impressed at the base, but abbreviated a little before the extremity, and each is also furnished on the deflexed portion with a very deeply impressed line.

A single specimen only of this extremely remarkable *Bryaxis* has been brought back by Mr. Lewis. It is no doubt a male, the sexual characters being most prominent.

Mr. Lewis has also submitted to me a single specimen of a *Bryaxis* which may possibly prove to be the female of *B. princeps*. Besides the absence of the characters above assigned as those of the male of *B. princeps*, it differs, however, in being smaller, and of a darker, more obscure colour, and has the elytra very distinctly shorter. The antennæ, though thinner and shorter than in the male individual, are similarly formed, except that I can see no tubercle on the 11th joint. Having a strong impression that, notwithstanding the discrepancy in colour, size and length of the elytra, this is the female of *B. princeps*, I do not give it a name, though it is quite possible it may prove to be the female, not of *B. princeps*, but of another species closely allied thereto.

Nagasaki.

17. *Bryaxis alienus*, n. sp. Obscure rufus, antennis pedibusque rufo-testaceis, clytris minus læte sanguineis; prothorace trifoveolato; antennis articulis penultimis transversis; pedibus tenuioribus, tibiis posticis curvatis. Long. $\frac{3}{4}$ —1 lin.

Mas, major, antennis longioribus validioribusque, articulo 6^o contiguus multo majore; pedibus elongatis, tibiis anticis apice intus exciso, intermediis calcari ante-apicali valido instructis, posterioribus apice abrupte curvatis.

This insect will probably ultimately be separated as a different genus from *Bryaxis*, the maxillary palpi being differently formed: these organs, in fact, a good deal resemble those of the genus *Tychus*, but at the same time are not longer than in ordinary *Bryaxis*; the antennæ approach also the genus *Tychus*, but their insertion is the same as in *Bryaxis*. The antennæ are yellow, and are thus formed in the male: 1st joint rather stout, 2nd joint rather small, subquadrate; 3rd joint longer and more slender than 2nd; 4 and 5 rather slender, similar to one another; 6th joint much longer and considerably stouter than the contiguous ones; 7th joint small; 8, 9 and 10 transverse, each of them broader than its predecessor, and a little produced on its inner side; 11th joint very stout, pointed. Head rather small, being distinctly narrower than the thorax, with a large fovea on the front part, and two smaller ones on the vertex. Thorax small, not above half the width of the elytra, the sides dilated in the middle; it has a large pubescent fovea on each side, and a third smaller but distinct one, without pubescence, in the middle; the extreme base is punctured, but elsewhere its punctuation is scarcely visible. The elytra are redder than the other parts, much longer than the thorax, each with a distinct sutural stria, and a curved stria between this and the shoulder. Hind body rather long, rather finely margined, the first dorsal segment nearly as long as the two following together. In the female the antennæ are both shorter and thinner than in the other sex; the 6th joint is longer but not stouter than the contiguous ones, and the apical joint is very much smaller than in the male.

About a dozen specimens from Hiogo and Nagasaki.

Obs.—A male individual, from Nagasaki, is rather more slender in form, and darker in colour, and appears to have the antennæ and palpi stouter: but these differences are not sufficiently decisive to warrant its being considered a distinct species on this single specimen.

18. *Bryaxis protervus*, n. sp. Palpis maxillaribus elongatis: brunneus, capite trifoveolato; prothorace globoso, dense fortiter punctato, trifoveolato; elytris obscure rufescentibus, striâ pleurali impressis. Long. vix 1 lin.

This insect departs from the ordinary species of *Bryaxis*, by its elongate and very slender maxillary palpi, and will no doubt be ultimately separated as belonging to a distinct genus. The maxillary palpi are yellow, and when extended their length is found to be equal to that of the eight or nine basal joints of the antennæ; their 2nd joint is elongate and slender, a little narrower in the middle than at the ends; 3rd joint oval, very slender at its insertion; 4th joint slender, twice as long as 3rd, pointed both at extremity and insertion. Antennæ rather stout; 2nd joint stout, shorter than 1st; 3—9 differing little from one another; 10th joint much larger than the preceding one, stout and transverse; 11th joint very large, obtusely pointed, much curved on the outside, nearly straight on the inside. Head narrower than the thorax, with two large foveæ on the vertex, and a third on the front between the insertion of the antennæ; on each side of this frontal fovea the head is elevated, so as to form a kind of antennal tubercle; eyes rather small, but prominent. Thorax much narrower than the elytra, nearly as long as broad, rounded at the sides and narrowed behind, very convex transversely, so that, viewed in profile, there appears a deep depression between its disc and the elytra; it is closely and coarsely punctured, and quite opaque; it has three foveæ, one in front of the base in the middle, and one on each side, the middle one not quite so large as the lateral ones. The elytra are redder than the other parts of the surface; they are a good deal narrowed towards the shoulders, without any projection at the humeral angle; they have the usual sutural stria, also a second stria between this and the shoulder, and also a deeply impressed line on the deflexed portion. The first dorsal segment of the hind body is rather long, and has at the extreme base behind the suture of the elytra a transverse patch of pubescence, from each side of which proceeds a very fine raised line, not reaching however to the extremity of the segment; it has also a small pubescent fovea on each side at the front angle. The legs are straight; the hind tibiæ without apical spur.

Kobé; two specimens, though I cannot speak with any certainty as to their sex—I guess them to be males.

19. *Bryaxis cubitus*, n. sp. Rufulus, sat nitidus, tenuissime pubescens, vix punctulatus; prothorace trifoveolato, foveolâ intermediâ lateralibus minore. Long. 1 lin.

Mas. antennis articulis sex ultimis incrassatis; tibiis anterioribus intus ante apicem excisis; femoribus anterioribus subtus ultra basin denticulo minuto; tibiis intermediis apice unco valido, brevi, minus inflexo; posterioribus apice abrupte curvatis, apice acute angulatis; tarsis posterioribus articulo secundo leviter incrassato, medio constricto; abdomine segmento ultimo ventrali impressione magnâ, insignis.

Male. Antennæ with the 2nd joint rather stout, shorter than the 1st; 3rd rather slender, longer than 2nd; 4 and 5 similar to one another; 6th dilated, triangular; 7th broad, transverse; 8th broad and short, smaller than the contiguous ones, and placed a little obliquely to them; 9th very transverse, 10th larger than 9th, equal and transverse; 11th rather large, but not broader than 10th, obtusely pointed. Head narrower than the thorax, with three large foveæ on the upper side, impunctate. Thorax only about half as broad as the elytra, considerably narrowed behind, not quite so long as broad, furnished with three foveæ of which the middle one is smaller than the others; it is impunctate, except that the extreme base behind the foveæ is finely punctured. Elytra without distinct punctuation, with a sutural stria, which is deeply impressed at its base, and with a curved stria between this and the shoulder, and also between these two striæ with a deep fine impression at the base. Hind body with the first dorsal segment longer than the 2nd, but not so long as the 2nd and 3rd together.

Nagasaki; two specimens. This species is very remarkable from the striking peculiarity of the antennæ of the male; the dilated portion of these organs is, as it were, elbowed in the middle; joints 6, 7 and 8 seen from beneath form a kind of irregular cavity.

Besides these two specimens, I have before me a female *Bryaxis* from the same locality, which may possibly be the female of *B. cubitus*. It wants all the characters given above as those of the male of *B. cubitus*; it is also a little smaller and has the thorax rather shorter. Its antennæ are slender, the 5th joint a little longer than the 4th; joints 7, 8 and 9 small, particularly the 8th; 10th joint larger than 9th, not transverse; 11th joint stout, obtusely pointed.

20. *Bryaxis mundus*, n. sp. Rufulus, sat nitidus, tenuis-

sime pubescens, vix punctulatus; prothorace trifoveolato, foveolâ intermediâ lateralibus minore. Long. vix 1 lin.

Mas, antennis articulis 10 et 11 magnis, 10^o, 9^o abrupte majore, femoribus anterioribus subtus ultra basin denticulo minutissimo; tibiis posterioribus intus apice unco sat valido; abdomine segmento ultimo ventrali impressione magnâ insignis.

Obs.—Species nostri europæi *B. juncorum* certe affinis; sed major, magis concolor, cum capite prothoraceque haud (vel vix) punctulatis, hoc minus transverso.

This species is closely allied to the *B. cubitus*, but is rather smaller and the male characters are different and much less striking. The antennæ resemble in structure those of *B. juncorum*, except that in the male the two last joints are very much larger than they are in the female. In the male sex these organs have the 4th joint rather shorter than the contiguous ones; the 5th and 6th joints rather long and similar to one another; the 7th and 8th joints small, scarcely transverse; the 9th joint also small, but distinctly broader than the 8th; 10th joint very large in proportion to the 9th, transverse; 11th joint large and stout, obtusely pointed. In the female the antennæ are relatively a little shorter than in the male, and have the 10th and 11th joints very much smaller.

Found on Mitzuyama, Nagasaki. Five individuals.

Besides these, Mr. Lewis has sent me a single specimen of a male *Bryaxis*, which may prove to be either a variety of *B. mundus*, or to belong to a closely allied but distinct species. It differs chiefly in the antennæ being stouter, the 7th, 8th and 9th joints distinctly stouter, and in its thorax being rather shorter and more transverse. Should it prove to be a distinct species from *B. mundus*, it is probable that the individual I have alluded to in my description of *B. cubitus*, as being possibly the female of that species, may rather prove to be the female of this species: in which case the female of *B. cubitus* yet remains unknown.

21. *Bryaxis pullus*, n. sp. Rufulus, sat nitidus, tenuissime pubescens, vix punctulatus; prothorace trifoveolato, foveolâ intermediâ minore; elytris basi sine impressione inter striam suturalem et striam discoidalem. Long. $\frac{2}{3}$ lin.

Mas, tibiis anticis intus ante apicem dente obtuso; abdomine segmento ultimo ventrali medio impresso, impressione minus discretâ.

Again allied to the European *B. juncorum* and of about the same size, but brighter in colour, with the antennæ longer and the head and thorax impunctate. From *B. mundus*, to which it is also closely allied, its smaller size and narrower form, and the want of the impression at the base of the elytra between the two striæ, readily separate it; and the male moreover is very readily distinguished by the different ♂ characters. The antennæ are rather long and slender, and differ in the two sexes only inasmuch as that the two last joints are more elongate in the male than in the female; joints 3—9 are particularly slender, joint 10 not transverse in the male, and only slightly so in the female, joint 11 rather slender.

Mitzuyama (alt. 1,500 feet), Nagasaki. I have examined ten specimens of this species.

I find that in *B. pullus* and *B. mundus* the first dorsal segment of the hind body has two very fine lines at the base, which I cannot detect in *B. juncorum*. In *B. pullus* these two lines are very fine and not easily seen, and are placed very close to one another behind the suture of the elytra, while in *B. mundus* they are more distinct and much more widely separated, each being placed just behind the termination of discoidal stria of the elytra.

22. *Bryaxis curtus*, n. sp. Rufo-testaceus, sat nitidus, vix punctulatus; prothorace trifoveolato, foveolâ intermediâ minore; antennis brevioribus articulis duobus ultimis cæteris multo latioribus. Long. $\frac{3}{8}$ lin.

Mas, antennis articulis duobus ultimis validioribus.

This little *Bryaxis* has the head and thorax small in proportion to the broad after-body. The antennæ are yellowish, short, the two basal joints broader than the following ones, 3rd joint small, shorter and more slender than 2nd, joints 4—9 small; in the male the 9th joint is transverse and extremely short, the 10th joint is also very transverse, more than twice as broad as the 9th, 11th joint very large, as broad as the 9th, obtusely pointed, furnished at the base on the inner side with a kind of tubercle, or tooth; in the female the 9th joint is slightly broader than its predecessors, the 10th joint is transverse, and about twice as broad as the 9th, the 11th joint is moderately large, about as broad as the 9th. The head is broad and short, about as broad as the thorax, impunctate, with the usual three foveæ. Thorax short in proportion to its width, but much

narrower than the elytra, impunctate, with three foveæ, of which the middle one is smaller than the lateral ones. Elytra much longer than the thorax, with an impression at the extreme base between the two striæ.

Except in the structure of the antennæ the male appears to me only to differ from the female, by possessing a small projection at the extremity of the middle tibiæ on their inner side.

Nagasaki; seven specimens.

23. *Bryaxis crassipes*, n. sp. Brunneus, obscure rufescens; prothorace crebre punctato, bifoveolato; elytris punctulatis; pedibus crassiusculis. Long. $\frac{2}{3}$ lin.

Mas, tibiis intermediis apice intus unco armatis; abdomine segmento ultimo ventrali transversim foveolato.

Fem. latet.

This curious little *Bryaxis* has at first sight somewhat the appearance of a *Bythinus*; it is remarkable (in the male sex at any rate) by its stout legs, the hinder tibiæ being particularly broad and laterally compressed. The antennæ are rather short and slender; 3rd joint more slender, and a little shorter than 2nd; 4—9 differing little from one another; 10th broader than 9th, rather transverse; 11th joint moderately stout, more than twice as long as the 10th, pointed. Head short and broad, but narrower than the thorax, with the usual three foveæ, almost impunctate. Thorax short and broad, but narrower than the elytra, closely and distinctly punctured, with a fovea on each side, and also with an extremely minute one in the middle. Elytra rather short, but longer than the thorax, finely punctured, with a sutural stria, and a second stria, which does not reach quite to the extremity, between this and the shoulder. First dorsal segment of hind body with two distinct fine lines at the base; they are moderately distant but diverge very considerably.

A single specimen. Nagasaki.

24. *Bythinus japonicus*, n. sp. Fulvus, sat nitidus, capite prothoraceque punctatis, opacis; elytris sat crebre fortiter punctatis; palpis articulo ultimo anguste securiformi. Long. $\frac{2}{3}$ lin.

Mas, antennis articulo secundo magno, globoso; pedibus plus minusve incrassatis.

. Allied to *B. puncticollis*, but of narrower and more

parallel form, with the last joint of the maxillary palpi shaped much as in *B. Curtisi*, and with the second joint of the antennæ in the male large and globose as in *Curtisi*, but without the projection on its inner side that exists in that species. The head is opaque, being finely rugose-punctate; it has two distinct impressions united in front. The thorax is rather short in proportion to its width; closely punctured so as to be dull; it has a fine curved line near the base. The elytra are rather long and parallel; they are rather strongly punctured, the punctures, though not coarse, being distinct and well marked; they have a well-marked humeral impression.

In the male the 2nd joint of the antennæ is large and globose, and much stouter than the basal joint. The legs also, especially the thighs, are incrassate in the male, but this character appears variable, as is the case in our *B. puncticollis*.

Fukuhora, Nagasaki; six specimens.

SCYDMÆNIDÆ.

1. *Eumicrus vestitus*, n. sp. Brunneus, sat nitidus, pube erectâ subtili densius vestitus. Long. $1\frac{1}{4}$ lin.

Mas, tarsi anterioribus dilatatis; trochanteribus intermediis acute angulatis; tibiis intermediis ante apicem intus excisis, excisione longius pubescente, apice ipso unco armatis; metasterno medio longitudinaliter impresso, impressionis lateribus acute elevatis.

This species is remarkable from the very dense upright pubescence with which it is clothed, as well as by the sexual characters of the male. The antennæ are rather longer than head and thorax, with the 5th joint much longer than the contiguous ones; the 7th and 8th joints small and rather transverse; the three last joints stouter than the others, but not transverse. Thorax very similar in form to that of *C. tarsatus*, its basal impressions very large. After-body broad and short; the elytra with the suture at the base elevated and thickened, and with a large and deep intra-humeral impression.

In the male the antennæ are slightly more elongate (especially the club) than in the female; the four anterior thighs are incrassate: the middle trochanters (which are a little tuberculate in the female) are acutely angulated; the middle tibiæ are excised at the extremity, where they are more densely pubescent. The metasternum is remark-

able by its wide and deep impression, the sides of which are elevated; and the last ventral segment of the hind body is much longer than in the female.

Abundant in refuse both in Kushiu and Nipon.

Obs.—The structure of the metasternum in the male is very notable, and it should be remarked that I have described a very similar formation of that part in the males of the Japanese species of *Ctenistes*.

2. *Scydmanus (Euconnus, Thomson) japonicus*, n. sp. Fulvo-testaceus, nitidus, antennis pedibusque gracilioribus; prothorace hirtello; elytris ampliatis, setis erectis, tenuibus, longioribus vestitis. Long. $\frac{3}{4}$ lin.

Allied to our *S. fmetarius*, but larger and very differently coloured, the elytra broader, and their setæ more conspicuous. Antennæ yellow, long and slender, the four apical joints long and slender, though distinctly thicker than the others; the 2nd joint longer than the 1st, 7th joint slender and elongate, 8th joint slender, much longer than broad; 9th and 10th similar to one another, rather stouter and shorter than 8th; 11th joint rather longer than 10th. Head much narrower than thorax, with the eyes rather large and coarsely faceted. Thorax longer than broad, narrowed to the front, impunctate but clothed with fine hairs; in front of the base, on each side, there is a transverse impression. Elytra considerably widened from the shoulders to a little beyond the middle, and then greatly narrowed to the extremity, shining and impunctate, but with very long, fine outstanding hairs; legs long and slender. the basal portions of the femora slender, their apical half clavate. Mesosternum with the carina strongly developed. Metasternum large, convex and impunctate. Hind body immersed in the elytra.

Common in marshes, especially at Urakami, Nagasaki.

3. *Scydmanus debilis*, n. sp. Fusco-testaceus, antennis pedibusque testaceis; illis brevioribus, articulis tribus ultimis abrupte majoribus; prothorace hirtello, basi transversim impresso; elytris setis sat elongatis, suberectis vestitis. Long. $\frac{1}{2}$ lin.

This little *Scydmanus* should, I think, be referred to the subgenus *Euconnus* of Thomson, though its antennæ are much shorter than in the other species of the group. The antennæ are scarcely so long as the head and thorax, joints 3—8 scarcely differing from one another, small,

each about as long as broad; 9th and 10th joints similar to one another, much broader than the preceding joints, only slightly transverse; 11th joint rather short and stout, about as broad as 10th, pointed. Head much narrower than the thorax, impunctate, the vertex elevated. Thorax rather longer than broad, narrowed to the front, irregularly clothed with fine hairs, with a transverse impression (scarcely interrupted in the middle) in front of the base. Elytra much broader than the thorax, but still rather narrow, much narrowed behind, completely covering the hind body except the utmost extremity of the pygidium; they have an elongate intra-humeral impression, and are moderately closely clothed with rather long suberect fine hairs. The legs are rather short. The metasternum is long, being about the same length as the abdomen.

Four specimens from refuse. Nagasaki.

4. *Scydmaenus fustiger*, n. sp. Rufescens, nitidus, pube fulvescente erectâ densius vestitus; antennis pedibusque testaceis, brevioribus, illis articulis quatuor ultimis abrupte majoribus; prothorace basi quadrifoveolato. Long. $\frac{5}{8}$ lin.

Antennæ yellow, shorter than head and thorax; 2nd joint rather long, 3—7 very small, 8—11 broad, forming an abrupt club; 8th rather longer than 9th and 10th, these two very transverse; 11th joint short, rather narrower than the 10th. Head narrower than the thorax, the vertex much elevated and produced over the front of the thorax; it is rather densely clothed with fine hairs. Thorax rather longer than broad, narrowed to the front, rather densely clothed with hairs, with two large punctiform impressions on each side of the middle in front of the base. Elytra redder than the rest of the insect, broad and short, rather densely clothed with pubescence, the humeral angle elevated into a rather stout plica.

Though I have been able to examine only a single specimen of the insect (the pubescence of which is evidently not in a very natural condition), I have ventured to describe it, as I think the structure of its antennæ will render the species quite recognizable.

Nagasaki.

5. *Scydmaenus reversus*, n. sp. Testaceus, subopacus, confertim punctatus, subtilissime pubescens; prothorace

subcordato, æquali: pygidio nudo, tuberculo magno instructo; mesosterno ecarinato. Long. vix $\frac{3}{4}$ lin.

Antennæ yellow, about as long as head and thorax; 1st joint longer than 2nd, joints 3, 4 and 5 differing little from one another, each longer than broad; 6, 7 and 8 small, similar to one another; 9, 10 and 11 forming a slender elongate club; 9th and 10th joints slightly transverse; 11th joint rather large, not quite so long as the two preceding together. Head subquadrate, truncate behind, very finely punctured, narrower than the thorax. Thorax narrower than the elytra, longer than broad, narrowed behind, densely and distinctly punctured so as to be quite dull, and extremely finely pubescent, without impressions or elevations. After-body rather narrow and elongate. The elytra distinctly (but more finely than the thorax) punctured and clothed with a fine depressed pubescence, with a very obsolete humeral impression. The pygidium is largely exposed, and bears a large tubercle, which is a little curved upwards. The mesosternum is without keel; the metasternum rather long; and the posterior trochanters are rather elongate.

A single specimen. Tagami, Nagasaki.

Obs.—This remarkable little insect has somewhat the facies of a small *Anthicus*; if submitted to a complete examination it would probably offer the characters of a new genus. I am uncertain as to its sex: the front tarsi are scarcely at all dilated, so that I have not called it a *Eumierus*, though, if the specimen should be a female, it would by its characters belong to that genus, rather than to *Scydmanus*.

LIST OF SPECIES.

PSELAPHIDÆ.

- Lasinus* (n. g.) *spinosus*, n. sp.
Centrotoma *prodiga*, n. sp.
Stipesa (n. g.) *rudis*, n. sp.
Tmesiphorus *speratus*, n. sp.
Ctenistes *oculatus*, n. sp.
 armatus, n. sp.
 medius, n. sp.
 similis, n. sp.
Batrisus *optatus*, n. sp.
 angustus, n. sp.
 ornatus, n. sp.
 stipes, n. sp.
 dissimilis, n. sp.
 modestus, n. sp.
Morana (n. g.) *discedens*, n. sp.

- Bryaxis* *princeps*, n. sp.
 alienus, n. sp.
 protervus, n. sp.
 cubitus, n. sp.
 mundus, n. sp.
 pullus, n. sp.
 curtus, n. sp.
 crassipes, n. sp.
Bythinus *japonicus*, n. sp.

SCYDMÆNIDÆ.

- Eumicrus* *vestitus*, n. sp.
Scydmænus *japonicus*, n. sp.
 debilis, n. sp.
 fustiger, n. sp.
 reversus, n. sp.

III. *Notes on the Habits of Papilio Merope, with a description of its Larva and Pupa.* By J. P. MANSEL WEALE, B.A.

[Read 17th November, 1873.]

At the request of Mr. Trimen I have for the last two years given my attention to the study of *Papilio Merope*, Cram., and I now propose to lay before the Society the result of my study of its life-history.

During my residence at the Koonap and Bedford, from 1864-69, I spent most of my time in collecting insects and plants. So conspicuous a butterfly as *Papilio Merope*, with which I had become acquainted at Grahamstown and Peddie, could hardly have escaped my observation, yet, during the whole of that time, the first four years of which were very dry, with prevalent north-westerly winds, I only twice noticed *Merope* ♂, viz., December and February, 1868-69.

When Mr. Trimen informed me of his opinion that *P. Cenea* was the female of *Merope*, I must own that I was very sceptical, notwithstanding my own observations of some curious cases of mimicry.

Following up the subject with a good deal of zeal, I began to learn the habits of *P. Cenea*, and to understand the meaning of the peculiar circular flight of *Merope*, as mentioned by Mr. Trimen in *Rhopalocera Africa Australis*, vol. i. p. 12.

At the bottom of my garden, at "Brooklyn," near King William's Town, is a glen or kloof, filled with trees and shrubs, through which runs a small stream. A portion of this I have partially cleared and planted with flowers and garden shrubs. The spot is nicely sheltered, and receives the early rays of the morning sun. It is a favourite resort of butterflies.

If on a fine warm summer's morning I go down to this kloof, about 9 or 10 a.m., I am nearly certain to see one of the females, generally a *Cenea*. At this time of day she flies lazily about, much after the manner of a *Danais*, or flutters over the flowers like a true *Papilio*. Her mate is not generally so early on the wing, but shortly after-

wards he may be seen hurriedly darting over the bush, down on some flower, then up again and away. At this hour he seems to pay but little attention to his lady-love.

As the day grows warmer, the females, generally but not always, glide away into some shady spot, often settling for long periods, or occasionally gliding about in their cool and sequestered bowers. The males at this time chase each other in a rapid and violent manner, constantly passing and repassing the hidden nook, where their lady-love has coyly retired.

As the afternoon draws on the females leave their retiring spot and flutter slowly about, sometimes coming out into the open, but more apparently to show themselves than for the sake of food. On one occasion I saw four males busily courting a female, but unfortunately I disturbed them. I have several times seen individuals courting, but the conclusion has always been as follows, viz.:—

The female darts away into the thickest bush pursued by the male, and out of sight. Sometimes I have noticed that the females will, towards the close of the afternoon, try to attract the males by flying at them when settled.

On one occasion I noticed a male fly after a very large *Danais Echeria* which I had myself mistaken for a *Cenea*-form of the female, but after once approaching, though repeatedly passing the place where she had settled, he paid her no more attention. As I thought it strange I captured the supposed *Cenea*, and then found it was *D. Echeria*.

Lastly, I would notice that I have seen a *Tehitrea cristata* capture a *Merope* ♂, and chase a *P. Nireus*, and I have little doubt that this bird, as well as *Dicrurus musicus*, Vieil., is most destructive to bush-frequenting *Rhopalocera*.

The conclusion to my observations was the discovery of the ova, larvæ, and pupæ of this insect.

The larva feeds on the leaves of *Vepris lanceolata*, A. Juss., one of the Xanthoxylaceæ; and the filamentous tubercles in the early stages lead me to suspect that it may resemble the larva of *Danais Echeria*. The suspicion is certainly bold, but the pupa is such a perfect imitation of the leaflets of its food-plant, and so diverse is the livery of the perfect female, that I do not think it improbable, especially as the full-grown larva, which also feeds on the upper surface of the leaf, is very difficult to distinguish from the leaf.

From the first two pupæ raised by me, two males of the

ordinary type *Merope* issued; from the third, a very peculiarly marked female of the *Hippocoon* form, and from the fourth a *Cenea* with the forewing white-spotted, with a faint tinge of ochreous in one spot.

Danaüs Echeria here is of the white-spotted variety, the type-form being very rare, and the imitating female *Merope* is similarly coloured as a rule.

With respect to the coloration, I would notice that when settled both *Merope* and his various wives are very difficult to distinguish from withered foliage, although in the cabinet the peculiar tone is wanting. On the wing the imitation must be of great service to the female, for her flight is very heavy and slow, while the males dart up and down with great rapidity, and her habit of gliding in and out of bushes must expose her to the attack of birds.

In the drawing I have to note that the pupæ of *Merope* are figured with the head processes recurved. In the early stage of the pupa these processes are exceedingly flexible, and when in contact with any hard substance are often recurved, although normally tapering to a point.

I have also to note in reference to the pupæ of *P. Merope*, that although smaller than the folioles of *Vepris lanceolata*, yet that the general appearance is very similar. The leaflets like the pupæ are paler below than above, and the mid-rib is slightly ferruginous; the leaflets are likewise undulated, an appearance well personated by the pupæ. The upper surface is more glossy than the lower, the base cuneate and sessile, and the margins often slightly inflexed. The surface, too, is multipunctate and reticulate, all of which points are to some extent imitated by the chrysalis.

Description of Larva and Pupa of Papilio Merope, Cram.

Larva.—1st stage. Black, with white filamentous tubercles on 2nd segment and anal segment.

2nd stage. Two pairs of filamentous tubercles on same segments, the first and last pair longest, a white transverse lunular band connected with the head laterally across 6th and 7th segments. Laterally a broad white band above spiracles. Last two segments whitish.

From this growth to the last change but one, the filamentous tubercles grow longer, and the ground colour changes from greenish-brown to greenish, and the white markings grow less distinct.

Full-grown larva.—Bluish-green, like larva of *Philog-*

noma Varanes. Tubercles very short, those next head yellowish, on anal segment whitish, very much like a slug in shape. Y-like organ crimson lake at base, tapering to greenish-white. On 4th segment, two small black spots, bordered by a narrow white line; 6th and 7th segments festooned with delicate whitish zig-zag lines. A double row of bluish white dots along back. Lateral borders above spiracles white. Head and true legs green, false legs pale ochreous. $1\frac{1}{4}$ to $1\frac{3}{8}$ inch long.

Pupa.—Bright green, paler beneath, with pale yellow linear stripes and dots. Very arched in middle, tapering to extremities. Fork at head merely divided, the branches nearly parallel.

Ventral aspect.—From head to abdomen a pale yellow line, forming a keel-like ridge, three pairs of pale yellow dots, on base of wing covers two irregular yellowish spots, sometimes wanting; wing nervures, &c., palely indicated by yellow lines; two lateral ridges yellowish, marked with brownish as in *Papilio Nireus*, its edges somewhat recurved towards dorsal aspect. Two brownish spots sometimes on abdomen.

The second third, between the suspensory threads, very much extended laterally.

Dorsal aspect.—Thoracic projection smaller than in *P. Nireus*, and, like it, tipped with a brown dot; abdomen somewhat concave from anal extremity to thoracic prominence, a dark mark, like the mid-rib of a leaf, terminating at the anal pedicel with a double loop resembling the joint of the footstalk of a leaf. Two small triangular yellow marks on abdomen, sometimes wanting. Viewed from the side or below, the resemblance to a leaflet is very striking.

Change from larva to pupa.

The caterpillar generally fixes its anal legs below the axil of a leafstalk, and fastens itself below 6th segment with a double thread to the petiole; the whole body becomes flaccid and pale green, with an increase of white along the sides, the head curved upwards and inwards. In this state it invariably remains for about twenty-four hours. The body then contracts longitudinally, and the skin is gradually pushed backwards; when the skin of head is detached, the bifid tubercles of head, *which in this stage are widely separated*, are pointed upwards, and pushed against the suspensory threads; the antennæ, which are detached from the rest of the body, are likewise bent up-

wards, and the united efforts of the tubercles and antennæ push the loose skin between the suspensory threads. The body is then violently bent from side to side. The thread by which the anal extremity is attached is lengthened, so that it becomes almost detached, and the loose skin is then shaken off.

After a slight pause, the fork of head becomes straightened, and the tubercles parallel. The body is at intervals drawn up at the thorax; the head is drawn downwards, and the antennæ become attached to the body. The anal extremity is again attached. The keel and lateral ridges appear, and the bifid processes, which are now closely parallel, are bent downwards. The imago emerges in three weeks.

The following is a list of imagines raised by me from larvæ:—

| | | | | |
|-------------|----|-----------------|---|--|
| 30th March, | 1. | <i>Merope</i> . | ♂ | |
| 10th April, | 2. | Do. | ♂ | |
| 14th | „ | 3. Do. | ♀ | } A peculiar <i>Hippocoon</i> form. |
| 15th | „ | 4. Do. | ♀ | |
| 20th | „ | 5. Do. | ♀ | „ „ |
| 24th | „ | 6. Do. | ♂ | |
| 26th | „ | 7. Do. | ♀ | <i>Trophonius</i> form. |
| 1st May, | 8. | Do. | ♂ | |
| 2nd | „ | 9. Do. | ♀ | Kaffrarian <i>Cenea</i> . |
| | „ | 10. Do. | ♂ | } Forewings with a black mark at extremity of discoidal cell, hindwings like <i>Papilio Meriones</i> . |
| | „ | 11. Do. | ♂ | |
| 7th | „ | 12. Do. | ♀ | Kaffrarian <i>Cenea</i> . |
| | | 13. | | |
| | | 14. | | |
| | | 15. Do. | ♂ | (R. Trimen). |
| | | 16. | | |
| | | 17. | | |

It will thus be noticed that the males are as numerous, or only a little more so, than the females. This conclusion I had previously arrived at from observation. The rarity of females in collections I believe to be principally owing to their peculiar and retiring habits. In the Perie forest I have seen dozens of the male, but never a female, and I attribute this to the difficulty of penetrating the thick

bush. Nothing can be more remarkable than the difference of flight in the two sexes, and I have already elsewhere noticed that the female of *Nymphalis Xiphares*, which is much more easily captured than the male, appears to me to be assuming an *Echerioid* protection.

In my collection I have a remarkable series of the females with various intermediate examples, some of which are very curious, and I entertain a suspicion, perhaps unfounded, that the *Hippocoon* and *Trophonius* forms are here being slightly modified to an imitation of a very common and variable *Acræa*—viz. *Acræa Esebria*, Hewitson.

Explanation of Plate I.

- Figs. 1—1. The Larva in different stages of growth, with leaflets of *Vepris lanceolata*. (1*. Ventral aspect).
- Fig. 1a. The Larva immediately before assuming the pupal condition.
- Figs. 2—2. The Pupa viewed dorsally.
- Fig. 2a. The Pupa viewed thoracically and ventrally.
- „ 2b. The Pupa viewed laterally.
- „ 3. The ♂ Imago (example “No. 6” of those reared by Mr. Weale) at rest, to show the protective resemblance of the colouring of the under-surface to that of faded leaves.

IV. *Observations on the Case of Papilio Merope, Auct.; with an account of the various known forms of that Butterfly.* By ROLAND TRIMEN, F.L.S., F.Z.S., &c., Curator of the South-African Museum.

[Read 17th November, 1873.]

IN connection with the foregoing very interesting paper by Mr. Mansel Weale I think it may prove of use if I give a brief *résumé* of the case of *Papilio Merope*, and at the same time add a few remarks by way of supplement to Mr. Weale's observations.

My first introduction to this butterfly in nature took place in 1858, at Knysna, on the south coast of the Cape Colony. The males were numerous in the woods of that district, and from their size and pale colouring were the most conspicuous of all the forest insects. *Papilio Cenea*, Stoll (now proved by Mr. Weale to be one form of the ♀ *Merope*), was scarce, and I did not meet with a specimen of it until I had been familiar with *Merope* for some months. The first *Cenea* that I found, I very nearly passed by as an ordinary *Danaïs* (*Amauris*) *Echeria*, Stoll, but something peculiar about the size and markings attracted my attention and led me to capture the insect. I well recollect my astonishment on finding that I had taken a *Papilio*! The points in which this specimen resembled *Merope*—viz. the apical spot of the forewings and the colouring and spotting of the whole body—at once struck me, and were noted in writing on the date of capture; but I was not at that time at all aware of the extent to which sexual disparity is carried in nature, and instead of crediting *Cenea* with her proper position as the lawful wife of *Merope*, I inclined to the belief that she was an illegitimate hybrid between the noble *Merope* and the dusky *Danaïs Echeria*! When I afterwards met with other examples of *Cenea*, and also with two of the form *Trophonius*, Westwood, I had to abandon my idea of a hybrid, and was fairly puzzled.

It was not until the year 1866, that my brooding suspicions of some mysterious connection between *Merope*

and *Cenea* took a definite shape. Mr. H. W. Bates had sent me his admirable paper on the Heliconidæ of the Amazons Valley,* which so ably discusses and explains Mimetism among Lepidoptera and other insects. My friend Mrs. Barber, in June of that year, sending me specimens of *Cenea* from near Grahamstown, requested me to send her a male *Cenea*, in order that she might figure him in her series of drawings of the South-African Butterflies.† I soon discovered that I was not in a position to supply even this modest order; no such creature as a "male *Cenea*" could be found either in the collection of the South-African Museum or in my own. A strict examination of that suspicious character, *P. Merope*, resulting in nothing but males, I felt convinced that it was "a case;" and subsequent close comparison of the two butterflies only strengthened my conviction that they were the sexes of one and the same species. I at once communicated my view of the case to Mrs. Barber, who (as well as her brother, Mr. J. H. Bowker) was somewhat incredulous, though manifestly not unprepared to find it turn out a true one. Mr. Bowker, indeed, had discovered the widely-differing sexes in the not dissimilar case of *Papilio Echerioides*, Trimen,‡ and so could not fail to be in a position to admit the possibility, if not probability, of my view.

During the earlier part of the year 1867, I made a collecting excursion in Natal, and indulged the hope that I might then have the opportunity of taking the sexes together, but in this I was disappointed, though I once saw *Merope* in pursuit of *Cenea*.§

On proceeding to England, later in the same year, I pursued my examination of the sex of all the accessible specimens of *Merope*, *Cenea*, *Trophonius*, *Dionysos*, Doubl., and *Hippocoon*, Fab., and found nothing but males of the first, and females of the rest. In a paper read before the Entomological Society on 2nd December, I mentioned my belief that *Cenea* was the ♀ *Merope*,|| and intimated my intention of treating fully of this and

* Trans. Linn. Soc. vol. xxiii.

† In the same letter Mrs. Barber stated that she had noticed *Cenea* laying her eggs on the underside of the leaves of *Vepris lanceolata*; keeping about the uppermost branches of the tree, so that it would not be easy to secure the larvæ.

‡ See Trans. Ent. Soc., 1868, p. 76.

§ See Entom. Monthly Mag. March, 1868, p. 220.

|| Trans. Ent. Soc., 1868, p. 76, note.

some similar cases in another paper. I carried out this intention in a paper read before the Linnean Society on 5th March, 1868,* which described all the cases of mimicry among African butterflies with which I was then acquainted. With *P. Merope*, I associated all the female forms just mentioned, pointing out how two of them (*Cenea* and *Hippocoön*) accurately imitated *Danaüs Echeria* and *D. Niavius* respectively, and a third, *Trophonius*, fairly copied *D. Chrysippus*. The still prevalent instability of the ♀ *Merope* was indicated by a reference to the various specimens more or less intermediate between the more pronounced forms, which are sometimes met with. Referring to the closely-allied *P. Meriones*, of Madagascar, I noted that the ♀ of that species only differed from the ♂ in the possession of a broad black bar on the costa of the forewings; which marking I suggested as the material upon which—in the case of active persecution and destruction of all the paler females of the allied species on the African continent—"natural selection might gradually work, to the ultimate production of a Danaidiform butterfly like *Hippocoön* or even *Cenea*.

My view of the case naturally met with more acceptance among entomologists who had observed insects in tropical or sub-tropical regions than among those whose experience was limited to Europe, and it received the weighty support of Mr. Bates in his Address to the Society at the Anniversary Meeting on the 25th January, 1869.† Mr. A. G. Butler,‡ and Mr. W. F. Kirby,§ subsequently published their belief in the case by giving *Cenea*, &c., as the females of *Merope*, and of the Western form (*Brutus*, Fab.) respectively.

Among the lepidopterists with whom I have the pleasure to be acquainted, I think the most uncompromising opponent of my view of this matter was my friend Mr. Hewitson;—though I must say that our distinguished President, Professor Westwood, was almost as resolute in his unbelief. I am not aware that the latter published anything on the subject; but Mr. Hewitson, in the letter-press accompanying his excellent figures of *Hippocoön*, and the closely allied forms from Western Africa (*Exot. Butt.*,

* Trans. Linn. Soc. vol. xxvi.

† Proc. Ent. Soc., 1868, pp. lxviii., lxix.

‡ Trans. Ent. Soc., 1869, pp. 275, 276; and Cat. Fabr. D. Lep. in B. M., 1869, p. 252.

§ Synon. Catal. Di. Lep., 1871, p. 563.

pt. 72, Oct. 1869), remarked on the case as follows, viz. "I have figured the species of the plate in confirmation of an opinion expressed by Mr. Trimen, which I have myself long held, that *P. Hippocoon* and *P. Dionysos* are one species, now confirmed beyond a doubt by the very interesting intermediate varieties. . . . I cannot, at present, associate with them either *P. Cenea* of Stoll, or *P. Trophonius* of Westwood, although the latter very much resembles them. . . . That the butterflies now figured are all females there cannot, I think, be a doubt; * but that they are the females of *P. Merope*, as suggested by Mr. Trimen, I do not for one moment believe. *P. Merope*, of Madagascar, has a female the exact image of itself; and it would require a stretch of the imagination, of which I am incapable, to believe that the *P. Merope* of the mainland, having no specific difference, indulges in a whole harem of females, differing as widely from it as any other species in the genus. The fact that *P. Merope*, when received from the Continent, is always of the ♂ sex, and the *Cenea* groups all females, is very slender evidence. We receive constantly a large number of butterflies of which we know but one sex. Nearly all the many species of *Catagramma* are without their females. That the male *Merope* has been seen chasing the female *Cenea* is evidence still more slight, when butterflies of widely differing families, as recorded by Mr. Algernon Chapman in the *Entomological Magazine* for this month, may be discovered in copulation. It is true that we have of late been introduced to some strange anomalies in the sexes, but to none which bear comparison to this. In the orange-banded *Epicalias*, there is no resemblance certainly between the male and female, either in colour or in the arrangement of the spots; but there is no total disagreement in form. In the two species of *Papilio* which have lately been united, *Torquatus* and *Caudius*, and *Argentus* and *Torquatinus*, though much unlike each other, there is quite sufficient resemblance not to shock one's notions of propriety.

"Mr. Trimen, in the paper in the Transactions of the Linnean Society in which he discusses this subject, and details the biography of *P. Merope*, from its first creation in Madagascar to its subsequent wonderful polymorphosis on

* "Mr. Trimen, if I understand him right, gives this (may I call it a dream) as a supposition only. Mr. Bates, in his address as president of the Entomological Society, speaks of it as an established fact." Hewitson, loc. cit., note.

the Continent, says that 'entomologists, no less than naturalists generally, appeared content with a child-like wonder at this and kindred facts, and let them pass as things inscrutable,' until Mr. Darwin gave us a 'rational explanation of these phenomena.' I must say, and I hope that I may do so without giving offence to any one, that I prefer the childlike attitude of former naturalists to the childish guesses of those of the Darwinian school."

It is with reluctance that one contemplates the stretching of Mr. Hewitson's imagination to an extent "of which he is incapable," or the inevitable shock which his "notions of propriety" will receive, but the evidence now adduced by Mr. Weale is such that the profoundest sceptic cannot explain it away, and must allow that the dream had proved to be a true vision. As far as the southern race is concerned, it has now been proved indisputably, that the so-called distinct species, *Papilio Cenea*, Stoll, *P. Trophonius*, Westwood, and *P. Hippocoon*, Fabricius (austral form), are the differing females of *Papilio Merope*, Cramer.

I need not trouble the Society with any account of my various endeavours, since 1868, to get the *Merope-Cenea* case established beyond refutation. It is sufficient to say that I kept the subject prominently before those of my correspondents in South Africa who had opportunities of observing the two butterflies in nature. Mr. Mansel Weale, as mentioned in his paper, has latterly been very favourably situated for the purpose, and merits the thanks of entomologists for the thorough manner in which he has availed himself of his advantages. From time to time he has sent me most tantalizing notes of the very suspicious proceedings of *Merope* and *Cenea* in that delightful wooded glen which is so conveniently situated "at the bottom of his garden," and I gradually became convinced that his clearing-up of the case would be only a question of time. On the 3rd March last, he announced in a letter that he had "six larvæ of *Cenea-Merope*, all in good health,—one just out of egg," and supplemented the welcome news on the 20th, by the intimation that he had by that time no less than twenty-two larvæ. A letter dated the 14th April informed me that two specimens of *Merope*, and a peculiarly-marked *Hippocoon*, had resulted from the three larvæ that first puparised, while a brief postscript on the 15th completed the intelligence by declaring the emergence of a *Cenea* from a fourth pupa. Accompanying this letter were two

pupæ of the butterfly, kindly sent to me by Mr. Weale; and from one of these, on the 6th May, I had the great pleasure of rearing *Merope*. The other pupa up to this time (2nd June) has not produced the imago, and its discoloured surface makes me apprehend that it is dead.

The protective resemblance of exposed lepidopterous pupæ to their surroundings is very general; but it is specially interesting to find that a butterfly protected by mimicry to such an extraordinary extent in its imago condition as *P. Merope*, should be almost as strikingly favoured in the pupa state. Mr. Weale's description and figures show how closely the chrysalis copies the leaflets of *Vepris lanceolata* among which it is suspended, the veriest minutiae of colouring and outline being strictly imitated. Though I have not had the pleasure of seeing it attached to the living plant, I can bear witness to the striking imitation which the chrysalis presents of a lanceolate leaf. Even on the bare twig of a mimosa to which I had attached it, the leaf-like appearance was so great as to deceive several persons to whom I exhibited the finer of the two pupæ sent to me by Mr. Weale. It is most remarkable that the ventral and dorsal aspect of the chrysalis should be of quite different shades of green, corresponding respectively with the colouring of the upper and under surfaces of the leaves. The modifications of shape and outline which combine with the colouring to complete this deceptive resemblance are unusually great, when the pupa is compared with those of other species of *Papilio*. Not only is the whole pupa much flattened, and the convexity of the ventral and pectoral region balanced by an unusual concavity of the dorsal region (with almost a suppression of the dorso-thoracic prominence), but the development and expansion of the lateral longitudinal ridges is very pronounced. The cephalic projections, however, exhibit the most unique form. If these had retained the customary conspicuous divergence into two prominent processes, as in *P. Demoleus*, *P. Nireus*, &c., it is obvious that the general resemblance to a leaf would have been greatly lessened, and the object of concealment to some extent frustrated. These projections are, however, brought closely together, so that their inner edges touch throughout their length to the very extremity,* and their outer edges converge

* Here and there at the meeting-line the contact is not exact, leaving minute crevices between the two projections of the head.

to a common point; and in this manner the tip of the leaf is accurately represented. I do not think that any case of the same modification of a *Papilio* pupa is on record, as regards the cephalic processes; but it appears that, in one section of the genus, those processes are reduced to a mere blunt elevation, while the dorso-thoracic prominence is produced to some distance above and beyond the head into an elongated point,—obviously to give the dorsal aspect of the pupa the appearance of a leaf. The chrysalides that I refer to are those of *Papilio Brasidas*, Felder (the southern form of *P. Leonidas*, Fab.), which has been figured by Mr. H. C. Harford from specimens found in Natal, and of the Indian *P. Sarpedon*, Linn., and *P. Eurypylus*, Linn., figured in the Catalogue of Lepidoptera in the Hon. E. I. C. Museum (1857; pl. iii., f. 8 a, and pl. xii., f. 10 a). The pupæ of the three species last referred to are, however,—to judge from the figures—so robust in proportions that their likeness to leaves must (except on the dorsal view) be much less complete than that afforded by the pupa of *Merope*.

Under the heading “change from larva to pupa,” it will be observed that Mr. Weale notes the remarkable circumstance that the cephalic processes are at the outset widely separated in the developing pupa of *Merope*, and the further most singular fact that they, in conjunction with the concaved haustellum or antennæ, are used by the insect to rid itself of the larval skin. These observations were so new to me, that I thought it well to address Mr. Weale on the subject, and his reply is as follows, viz. :—

“With respect to the transformations, you may have noticed I first of all put ‘haustellum’ for ‘antennæ,’ and I am rather disposed to think the first right; and will endeavour to preserve one next year in the process. I never remember noticing anything of the sort in any other butterfly. The following will give you a rough idea of the appearance. Whether it be the haustellum or antennæ, it or they are quite detached along the middle from the body, and afterwards become attached. The line of joining is coincident with the keel-like ridge, and at the time is soft and very viscid, and the junction is completely hidden by the up-arching of the body during the last part of the transformation.”



This temporary functional activity of the cephalic processes for a special object, aided by the freedom for the time of the incipient haustellum (or antennæ?) case, is quite unprecedented in my experience, nor can I recall any record of similar action attending the assumption of the pupal form among the Lepidoptera. And it is certainly a most curious and interesting fact that the very organs actively employed in ensuring the due accomplishment of the chrysalis state are specially those which, when the change is complete, assume a position and appearance essential to the protection of the insect,—the haustellum representing the midrib of the leaf (on the upper side) and the processes the apex.

With reference to the various forms of *Merope* reared by Mr. Weale from the larvæ of the past season taken on his farm, I very much regret to state that my intention of forwarding the whole series to the Society, in illustration of that gentleman's memoir, cannot be carried into effect. Mr. Weale kindly despatched the specimens in a stout corked box, but they sustained such grievous injuries on their 700 miles journey by post, that they arrived in a state which quite precludes their being used for purposes of illustration, as far as the females are concerned,—the males being mostly but little damaged. By dint of some care and trouble, however, I have been able to patch up the females to a sufficient extent for their proper determination, and can testify to their due definition in the list which Mr. Weale has given. The "peculiar *Hippocoon* form" (No. 3), is one of several variations with which I am acquainted, linking that form of the ♀ to the form *Cenea*. In the forewings both the sub-apical white bar and the inner-marginal white patch are considerably smaller and narrower than in the ordinary southern *Hippocoon*, the latter marking being interiorly clouded with blackish. It most nearly resembles the variation figured in the second plate accompanying my paper in the Linnean Society's Transactions (vol. xxvi., tab. 43, f. 2), and like that example wants the apical spot of the forewings; but (as far as I can make out in its very damaged state) it has more resemblance to *Hippocoon* in the wider white space of the hindwings. The *Trophonius* (No. 7) differs both from that figured by Westwood (*Arc. Ent.*, i., pl. 39, ff. 1, 2), and from the example figured to illustrate my paper just referred to (*loc. cit.*, tab. 43, f. 5), in the longer and more obliquely-placed sub-apical bar of the

forewings, and in the total want of the apical spot in those wings.

The seven males present the customary amount of variation in the transverse black markings of the upperside of the hindwings,—from three sub-quadrate discal blotches to a continuous irregular bar,—and in these particular markings no two of them nearly agree. It is the same with the amount of black marking on the tails of the hindwings, which varies from a simple median streak, with an accompanying short suffused stripe bounding the basal half of the tail interiorly, to a black space absorbing almost the whole basal two-thirds of the tail. Four of the seven specimens possess, more or less faintly, the blackish line defining the 2nd disco-cellular nervule of the forewings.

Mr. Weale justly observes that the ochreous colouring of the underside of the wings well serves to protect these butterflies from observation when at rest among withered foliage, and in this respect the males are, perhaps, from their lighter-tinted under-surface, better protected than the females. Mrs. Barber, at the beginning of the year 1871, was fortunate enough to observe this protective resemblance in nature, and sent me the following note on the subject, viz. :—

“ I caught a fine *Merope* with my finger and thumb the other day. It was just beginning to rain, and, though it was not late, *Merope* thought proper to seek a resting-place, which he wisely chose upon a shrub which resembled his own underside colouring. It was a splendid match :—when he closed his wings among the yellow and brown seeds and flowers of the shrub, no bird would ever have distinguished him. I had no net with me, and my first attempt was a failure. However, the butterfly took a turn round the neighbourhood, examined several other shrubs (which he found were not so good, I suppose) and eventually returned to the same perch.”*

In relation to the protective mimetism so abundantly exhibited by this remarkable species of *Papilio*, it is most

* “ I believe all butterflies act thus, where it is possible to match their colours. *Pyrameis Cardui* will always take a mottled stone or old wall. I have, however, often seen *Danais Chrysippus* perched at the extremity of a tall rush or grass stem, where there was no colour resembling his own, but in this case *he was passing himself off as a flower*, and, I can assure you, looked very like one !” Mrs. Barber, *in litt.*

interesting to find that one at least of the persecuting agencies which have in all probability led to such profound modifications in the colouring and form of the insect is still at work. The fly-catcher, *Tehitrea cristata* (*T. viridis*, Müll.), has been observed by Mr. Weale to capture *Merope* ♂, and he has reason to suspect a bird of a closely allied family, and quite similar habits, *Dicrurus musicus*, Vieill., to be another of the butterfly's enemies. Representatives of these two genera of insectivorous birds are prevalent throughout the African continent, and the activity and rapacity of those whose habits are known to us are very great. But these are only two, prominent by conspicuous plumage and bold pugnacious habits, among a large number of African birds whose food consists of insects; and it may fairly be inferred that, for ages past, the size and colour of *P. Merope* must have rendered it a favourite prey of the *Muscicapidæ* generally.

In concluding these notes, I wish to make a few observations on the synonymy of the very interesting *Papilio* to which they refer. Mr. A. G. Butler, in his paper already referred to (Tr. Ent. Soc., 1869, pp. 275, 276), has given the fullest and latest arrangement of the several forms, as exemplified by specimens in the collection of the British Museum. He groups them as follows, viz.:—

1. *Papilio Merope*.

(a.) *Cenea*.

♂. [Diagnosis.]

♀. *Cenea*, Stoll, Suppl. Cramer, pl. 29, fig. 1 (1791).

♂, ♀. Zoolu Country.

(aa.) *Cenea*, var.

♂. [Diagnosis.]

♀. *Cenea*, var., maculis anticarum albis. Trimen in Trans. Linn. Soc., xxvi. tab. 43, f. 4 (1869).

♂, ♀. Port Natal.

(b.) *Merope* (true).

♂. *Merope*, Cramer, Pap. Exot., ii. pl. 151, figs. A, B (1779).

♀. *Trophonius*, Westwood, Arcana Entom., pl. 39, figs. 1, 2.

♂. Knysna

♂. [No locality recorded.]

2. *Papilio Brutus*.(a.) *Brutus*.♂. *Brutus*, Fabricius, Sp. Ins. p. 13 (1781).♀. *Hippocoon*, Fabricius, Ent. Syst., iii. p. 38 (1793).

♂, ♀. Sierra Leone.

(b.) *Niavius*.

♂. [Diagnosis.]

♀. *Niavius*, Cram., Pap. Exot., iii. pl. 234, fig. A (1782).

♂, ♀. Ashanti.

The ♂s allotted to the several sub-divisions are distinguished in this arrangement, by the differences presented by the *upperside* as regards (in forewings) the size and form of the apical spot, the width of the costal black edging in respect of the discoidal cell, the breadth of the hind-marginal black border, and the "undate" or "dentate-sinuate" hind margin; and (in hindwings) the prevalence of a more or less complete, black, discal fascia, and of black marking on the tails: and, by the *underside*, as regards darker or lighter colouring. The ♂s of (a.) *Brutus* and (b.) *Niavius* are further defined from the southern ♂s by their longer wings and much paler under surface of hindwings; while the latter is distinguished from the former by its greater size and much broader border of forewings.

The possession of fuller means of judging than I possessed, when writing of these butterflies in 1868, enables me to state that I quite concur with Mr. Butler in holding that the prevalent form of *Merope* on the coast of Western Tropical Africa is sufficiently distinct in both sexes from the southern form to take rank as a separate species. In the ♂s, besides the longer wings and paler* underside colouring noticed by Mr. Butler, the western form appears constantly to have longer tails to the hindwings; all the internervular, dark rays on its underside are in both wings, and especially in the basal half of the hindwings, much more fuscous and strongly marked, and the discal bar on the underside of the hindwings is narrower, more broken, and irregular, and more inclining to fuscous than ferruginous-ochreous. In the ♀s, *Hippocoon* differs from the corresponding southern form, not only in its larger size and comparatively longer wings, but in the broader, sub-apical,

* And, I would add, *less rufescent*.

white bar of the forewings, and the much smaller white patch of the hindwings. The type of the form *Trophonius*, figured by Mr. Westwood in *Arcana Entomologica*, is clearly a southern example. The nearest approach to it known from the western coast of Africa is the example figured by Mr. Hewitson (*Exot. Butt.*, iv. pt. 72, Oct. 1869, pl. xii. (*Papilio*), f. 40), which as regards the forewings presents a broader, more oblique, almost wholly brick-red, sub-apical bar, but (unlike the form *Hippocoon* in the same region) has quite as broad a patch in the hindwings as is found in the southern *Trophonius*, and is little, if anything, larger than the latter.* The *Dionysos*-form of ♀ is peculiar to Western Africa, and, in company with the curious allied form figured by Mr. Hewitson (*loc. cit.* f. 39), is of high interest, not only as combining the features of *Hippocoon* and *Trophonius*, but as indicating, in its possession of *merely a trace of black* between the white sub-apical bar and inner-marginal space of the forewings, the mode in which (as suggested by me in the Transactions of the Linnean Society, *loc. cit.*, with reference to the ♀ *Meriones* of Madagascar) the extraordinary modification of the forewing markings of the ♀s was most probably initiated. *Dionysos* is, in fact, of all the continental African ♀s the least profoundly modified form as compared with the ♂. All the western ♀s, like the ♂s (but more so in the outer portion of hindwings), are distinguished from southern examples by the strongly-marked fuscous rays between the nervures.

While, therefore, I follow Mr. Butler in separating as species, in the present lack of intermediate forms, the western and southern races of *Merope*, I wish to observe that I cannot support the nomenclature which he has assigned to the several sections in this arrangement. It will be seen above that under the head of "(b.) *Merope* (true)," Mr. Butler quotes Cramer's earlier figures (tab. 151, A, B) of the ♂, associates with them, as ♀, *Trophonius*, Westwood, and gives the ♂ from Knysna, in South Africa (presented by myself in 1859), as representing Cramer's type. But a reference to Cramer's

* The explanation of this discrepancy seems obvious. The western *Hippocoon* closely mimics the largest of western *Danaides* (*Amauris Niavus*), which has a small white patch in hindwings; while *Trophonius* is modified in imitation of the considerably smaller *Danais Chrysippus*, in which nearly the whole field of hindwings is brick-red. In both the western and southern *Trophonius*-form of ♀ the subapical bar of forewings is sometimes almost as red as the other markings. This variation appears to be in imitation of the *Dorippus* variety of *Danais Chrysippus*.

figures on the plate quoted will show most clearly that they represent the *western* ♂, the distinctive characters which I have mentioned above being prominently given, especially the strongly marked inter-nervular rays of the underside of the wings, and the colour and narrowness of the discal band on the underside of the hindwings.* A comparison of these figures with Cramer's subsequent ones (pl. 378, ff. D, E), and with specimens of the insect from Western Africa, will convince the lepidopterist that the figures on both plates represent examples of the same western race of the butterfly, although in the later plate the special characters are more decided than in the earlier one. I consequently consider that the *western* race must be held as the typical *Merope*, and that Fabricius's later name of *Brutus* given to the same race must be sunk. The southern race will accordingly have to be distinguished by the oldest name given to any one of its forms; and this happens to be that of Stoll's (date 1791) applied to what is certainly the predominant ♀ form in the south, viz. *Cenea*. The adoption of the name of the ♀ for that of the species, in rectification of erroneous nomenclature, when there is wide disparity between the sexes, is perhaps not altogether desirable, but there is precedent for it in the case of *Diadema Misippus* and some other species, and it is certainly preferable to giving an entirely new name.

As regards Mr. Butler's minute sub-division of the southern race by allotting certain variations of the ♂ to *Cenea* (type), *Cenea*, var., and *Trophonius* respectively, I do not see that it can be borne out by what we know of the distribution of the several forms. The ♂s, not only from the same district, or from the same locality, but even from the same wood, vary indefinitely as to their black markings within certain limits. An instance of this is given by the seven examples above mentioned, reared by Mr. Weale from larvæ of one season found in the same spot. I possess five examples, taken by Mrs. Barber, Mr. F. Barber, jun., and myself, in the same little copse at Highlands, near Grahamstown, which present great variation in the discal upperside band of the hindwings,† and a

* It is singular that the apical spot on upperside of forewings should be divided into two in Cramer's figure A. I have never seen a specimen so marked.

† The most imperfect condition of this band that I am aware of is exhibited by a specimen which I captured at Knysna, Cape Colony, in which the three patches representing the band are reduced to widely-separated, irregular, attenuated spots, smaller (especially that at anal angle) than in the Western race.

noticeable difference in the width of the hind-marginal band of the forewings, as well as in the dentation of its interior edge. A very remarkable specimen, taken by Mrs. Barber at the mouth of the Kleinemond River, recalls, in the character of the spots which represent the hindwing bands, the ordinary West African ♂, but is also signalized by *a very narrow black border to the forewings*, only slightly denticulated on its inner edge. The other extreme form in the southern ♂ is that described by Mr. Butler under the head of "(aa.) *Cenea*, var.," from Port Natal, in which all the black markings are strongly developed, especially the discal band of the hindwings, which in some examples is quite unbroken. This form is most prevalent in Natal and the adjacent coast country, but also occurs near Grahamstown; it is (except, perhaps, in size) the furthest removed from the ordinary western ♂. I know of no locality in South Africa in which the ♂s are constant to any particular pattern; but, amid all their variation, I have noticed no example that approaches the western ♂ in the strongly-marked inter-nervular rays of the underside, except where (in some of those in which the black markings are most developed) the rays cross the discal band in the hindwings.

Looking to the southern ♀s, it is equally observable that the several well-defined forms are not restricted to particular localities. *Cenea* (typical) and *Trophonius* were taken by me in the same spots at Knysna and Plattenberg Bay respectively, and I have since received the *Hippocoön*-like form from the former locality.* Mr. Weale has bred *Cenea* (variety), *Trophonius*, and a variation closer to *Hippocoön* than to *Cenea*, from larvæ taken in one spot near King William's Town; and Mrs. Barber has sent me the three forms, as well as a variation (very near that delineated on fig. 2 of the second plate accompanying my paper in the Linnean Society's Transactions already referred to), all of which were taken at Highlands, near Grahamstown.

In Kaffraria proper, Commandant Bowker has met with *Cenea* (var.), *Trophonius*, and the *Hippocoön*-like form,

* From a collection brought from Knysna, by Mr. Lee, R.A., I acquired, in 1871, a most singular new variation of this Protean ♀. All the upper-side markings in this specimen are white, and though answering to those of the *Hippocoön*-like form, are so reduced and attenuated as (with the single exception of the very much narrowed and dentated sub-apical bar of the forewings) more to resemble those of the white-spotted variety of *Cenea*.

all the specimens of which are now in the South African Museum; while near D'Urban, Port Natal, I found both *Cenea* var. and the last-named form of ♀.*

These details of distribution seem to me satisfactorily to show that, as far as South Africa is concerned, we have not "representative species or races of *P. Merope* (as Mr. Butler suggests in his *Catalogue of Fabrician Diurnal Lepidoptera*, 1869, p. 252), but one widely-ranging polymorphic species, most unstable in character, yet varying within determinate limits, as regards the females, in the direction of accurate mimicry of the prevalent species of *Danais* (*Amauris*).

I have only to add that the following appears to be the accurate synonymy of *Papilio Cenea*, viz. :—

Papilio Cenea.

- ♂. *Papilio Brutus*, *Godt. (pars), Encyc. Méth.*, ix. p. 69, n. 122 (1819).
 " " *Donov., Nat. Repos.*, iii. pl. 77 (1825).†
 " " *Boisd. (pars), Faune Entom. de Madag., &c.*, p. 12 (1833).
 " " *Boisd., Var. A. Spec. Gen. Lep.*, p. 221, n. 39 (1836).‡
 " " *Chenu, Encyc. d'Hist. Nat.—Pap.*, pl. 2, f. 1 (? 1852).§
Papilio Merope, *Doubl. & Westw. (pars), Gen. Diurn. Lep.*, i. p. 13, n. 92 (1846).
 " " *G. R. Gray (pars), Cat. Lep. Brit. Mus.—Pap.*, p. 25 (1852).
 " " *Trimen (pars), Rhop. Afr. Aust.*, i. p. 11 (1862).
 " " *Trimen, in Trans. Linn. Soc.*, xxvi., tab. 43, f. 1 (1869).

* *Trophonius* has not as yet, I believe, been recorded from Natal; but a variation intermediate between that form and the representative of *Hippocoon* was (as I have elsewhere mentioned) taken by the late Colonel Tower, near St. Lucia Bay, on the coast north-east of Natal.

† Donovan delineates the southern extreme form in which the band across the hindwings on the upperside is unbroken. This band is, however, more even and regular on both upper and under surfaces than in any specimen which I have seen. The underside ochreous colouring is given as strongly rufescent. From the letter-press accompanying the plate, Donovan seems to have considered that the unbroken band was the distinctive feature of the Madagascar race (*P. Meriones*, Felder); but in this he was probably mistaken, as in all the Madagascar examples which have come under my notice, the band is represented by 3 or 4 small and widely-separated spots.

‡ Boisduval's "Variété A" is the same southern form as that figured by Donovan, and is noted as inhabiting the Outeniqua district, which is situated in the southern part of the Cape Colony.

§ Chenu gives the locality "Cafrérie," and figures rather a small example, which combines the characters of the two singular specimens above described (p. 150 and note), having the border of the forewings much narrowed, and the broken markings representing the band of the hindwings unusually small.

- ♀. (FORM 1). *Papilio Cenea*, *Stoll, Suppl. Cramer Pap. Exot.*, p. 134, pl. xxix., f. 1, 1A. (1791).*
- Danaüs Rechila*, *Godt. Encyc. Méth.*, ix. p. 183, n. 24 (1819).
- ? *Papilio Trophonius*, *Westw. (pars), Arc. Entom.*, i. p. 153 (1845).
- Papilio Cenea*, *Doubleday and Westw. (pars), Gen. Diurn. Lep.*, i., p. 20, n. 255 (1846).
- ” ” *G. R. Gray (pars), op. cit.*, p. 70, n. 322 (1852).
- ” ” *Trimen (♂), Rhop. Afr. Aust.*, i. p. 20 (1862).
- Papilio Merope*, *Trimen (1st Form of ♀), in Trans. Linn. Soc., loc. cit.*, f. 3 (1869).
- ” ” *Butler (♀, Form a), in Trans. Ent. Soc.*, 1869, p. 275.
- ” ” *Kirby (♀), Synon. Cat. Diurn. Lep.*, p. 563, n. 305 (1871).
- Variety*.—*Papilio Merope*, *Trimen (1st Form of ♀ var.)*, in *Trans. Linn. Soc., loc. cit.*, f. 4, and p. 521.
- Papilio Merope*, *Butler (♀, Form aa), in Trans. Ent. Soc., loc. cit.*, p. 276.
- ♀. (FORM 2). *Papilio Merope*, *Trimen (2nd Form of ♀ Hippocoon, Fab., var.)*, in *Trans. Linn. Soc., loc. cit.*, f. 6 (1869).
- ♀. (FORM 3). *Papilio Trophonius*, *Westw. “Ann. Nat. Hist.*, ix., p. 38 (1842),”† and *Arcan. Entom.*, i. pl. 39, ff. 1, 2 (1845).
- Papilio Cenea*, *Doubl. & Westw. (♀), Gen. Diurn. Lep.*, i. p. 20, n. 255 (1846).
- ” ” *G. R. Gray (♀), Cat. Lep. Brit. Mus.—Pap.*, p. 70, n. 322 (1852); and *List Lep. Brit. Mus.—Pap.*, p. 82, n. 339 (1856).
- ” ” *Trimen (♀), Rhop. Afr. Aust.*, i. p. 20, n. 8 (1862).
- Papilio Merope*, *Trimen (4th Form of ♀), in Trans. Linn. Soc., loc. cit.*, f. 5.
- ” ” *Butler (♀, Form b = “Merope, true”)*, in *Trans. Ent. Soc., loc. cit.*, p. 276.
- ” ” *Kirby (♀, Var. b), op. cit.*, p. 563, n. 305.

* Stoll figures a large and finely-coloured example from the “Païs des Caffres,” in which the largest spot of the forewings is thicker and more inclining to a quadrate form than in any individual which I have seen, and the sub-marginal spots of the hindwings are mostly larger than usual. The specimen nearest to the type, as far as I am aware, is one in the South African Museum, from either Kaffraria Proper or Natal, but several others in my own collection, from Knysna and Plettenberg Bay, more or less closely approach it. The small example figured to illustrate my paper in the Linnean Society's Transactions above quoted (fig. 3), was selected on account of its peculiarly accurate mimicry of *Amauris Echeria*, as well in size and outline of the wings as in the form of the ochreous patch of the hindwings.

† G. R. Gray, *Cat. Pap. Brit. Mus.*, p. 70 (1852).

♀. (Variations intermediate between the several Forms above enumerated):—*

A. Between Forms 1 (*Cenea*) and 2 (analogue of *Hippocoön*, Fab.)

a. *P. Merope*, *Butler* (♀, *P. Cenea*, var.), in *Trans. Ent. Soc.*, *loc. cit.*, p. 275.

[This individual is very close to the typical *Cenea*, but in the shape and position of the very restricted patch in the hindwings resembles the individual (b) immediately following hereunder. *Hab.* Grahamstown, Cape Colony.]

b. *P. Merope*, *Trimen* (♀, variation), in *Trans. Linn. Soc.*, *loc. cit.*, f. 2.

[All the markings in this individual are dull white. The forewings have the sub-apical bar of the *Hippocoön*-like form, and an inner-marginal patch strictly intermediate in size and shape between those of the latter form and of the *Cenea* form respectively. The patch of the hindwings is much narrowed by a fuscous basal suffusion. *Hab.* Tsomo River, Kaffraria.]

B. Between Forms 2 (analogue of *Hippocoön*, Fab.) and 3 (*Trophonius*, Westw.)

c. *P. Merope*, *Trimen* (♀, variation), in *Trans. Linn. Soc.*, *loc. cit.*, p. 510, *note.*

[This specimen has the ordinary markings of the forms which it links, excepting that the patch of the hindwings, though not obscured at the base, is decidedly narrower. All the markings are tinged with faint, dull, ochreous-yellow. *Hab.* St. Lucia Bay, South Eastern Africa.]

Additional variations to those above recorded are (1), the white-marked specimen from Knysna, described in this paper (*vide supra*, p. 150, *note*), which might stand between a. and b.; and (2), the striking variation of *Trophonius*, which has the sub-apical bar of the forewings considerably broader than usual, and *yellowish brick-red* instead of white. The field of red common to both wings differs from that ordinarily presented in being darker (inclining to ferruginous) and smaller, in the forewings not reaching to the median nervure, and clouded with fuscous between that nervure and the sub-median nervure. A very fine example of the latter was taken in the Division of Bathurst, Cape Colony, by Miss Mary Barber, in March, 1870.

* *P. Cephonius*, Hpfr. (*Stett. Ent. Zeit.*, 1866, pp. 131-2," according to "*Zoolog. Record*, 1866, p. 451), is unknown to me, but may be one of these linking variations. Mr. Kirby gives it under *P. Merope* as "Var. a," in his Catalogue of Diurnal Lepidoptera (1871). Mr. Weale's "peculiar *Hippocoön* form" (see above, p. 144) should be included under "A," and immediately follow "b," in the list of variations here given.

V. *Descriptions of Fifteen new species of Diurnal Lepidoptera, chiefly from South America.* BY HERBERT DRUCE, F.L.S., F.Z.S.

[Read 2nd February, 1874.]

1. *Morpho Alexandrovna.*

♂ Upperside brilliant greenish-blue, the outer margins all black, broadest at the apex of anterior wing. A white spot on the costal margin near the apex, below which are three rather faint bluish-white dots. Underside dark chocolate-brown. Anterior wing with greyish scales near the outer margin; the ocellus the same as in *M. Menelaus*, only three times the size. Posterior wing with a marginal band of red-brown, commencing at the apex and terminating at the abdominal margin; the ocellus the same as in *M. Menelaus*, only very large.

Exp. 6 inches.

Hab.—Peru; Huasampilla (Whitely).

In the collection of H. Druce.

Both sexes of this fine species are in the British Museum collection.

2. *Caligo Dentina.*

♂ Allied to *C. Atreus*, but differs in the following respects: the band of the anterior wing is very much broader and darker blue, not showing any white, as in *C. Atreus*; the band of the posterior wing is creamy white, much dentated on the inner margin. The lower half of the posterior wing is very dark brown, almost black; the underside is much darker than in *C. Atreus*, and the ocellus smaller.

Exp. 6 inches.

Hab.—South Peru.

In the collection of H. Druce.

I have seen several examples of this species of both sexes, all from South Peru.

3. *Heliconia Arcuella*.

Upperside ferruginous. Anterior wing with the apex and outer margin dusky; a comma-shaped spot within and a square spot at the end of the cell; three distinct spots between the branches of the anterior wing black. A band near and parallel to the inner margin black. Posterior wing crossed half-way beyond the middle by two black bands; a black spot close to the apex. Underside as above, but paler; two black spots between the costal and subcostal nervures of the posterior wing.

Exp. $3\frac{1}{4}$ inches.

Hab.—Nauta, Peruvian Amazons (Bartlett).

In the collection of H. Druce.

4. *Phyciodes Nana*.

Upperside dark brown, irrorated with ochreous scales. Anterior wing crossed half-way beyond the middle by a narrow white band. Posterior wing crossed beyond the middle by three ochreous bands, the first very indistinct. Underside: anterior wing with the white band as above, and pale brown at the base, a black line crossing the cell; posterior wing pale cream-colour, mottled with brown, crossed by a broken line, and several black spots near the outer margin.

Exp. $1\frac{1}{2}$ inch.

Hab.—Peru; valley of the Cosnipata (Whitely).

In the collection of H. Druce.

5. *Perisama Vichada*.

Upperside black. Anterior wing with the green bands as in *P. Humboldtii*. Posterior wing like *P. Hilara*. Underside like *P. Vitranga*, with the black bands wider apart, and the one nearest the base only extending to the middle of the cell.

Exp. $1\frac{1}{2}$ inch.

Hab.—Columbia.

In the collection of H. Druce.

6. *Perisama Canoma*.

Upperside black. Anterior wing crossed beyond the middle, from the costal margin to the anal angle, with a band of green, broadest in the middle, where it is joined by a band of the same colour, which commences at the base. A grey streak near the apex. Posterior wing with a narrow submarginal band of bluish-grey. Underside:

anterior wing black; the apex, a small spot about the middle of the costal margin, and the base, silvery white; the outer half of the cell bright carmine. Posterior wing silvery white, crossed by two narrow black bands; the one nearest the base curved inwardly and bordered on the inner margin with carmine to about the middle of the cell. The outer band zigzag; between the bands are four distinct black spots; the costal margin bordered with carmine.

Exp. $1\frac{3}{4}$ inch.

Hab.—Peru; Huasampilla (Whitely).

Unlike any other species.

In the collection of H. Druce.

7. *Aterica Clorana*.

Upperside rufous. Anterior wing with four black lines crossing the cell, and a black oval-shaped spot at the end of the cell. A band of six black spots beyond the middle curved inwardly, and a double row of black spots near the outer margin. Posterior wing with a black spot in the cell near the base, a double row of black spots round the outer margin. Underside same as above, but paler; both wings crossed beyond the middle by a band of red-brown, tinted with lilac on its outer margin; several small indistinct brown bands near the base. A row of brown spots crossing both wings from the apex to the anal angle; two white spots at the apex of the anterior wing, and a zigzag band round the outer margins of both wings.

Exp. 2 inches.

Hab.—Angola.

In the collection of H. Druce.

8. *Harma Claudianus*.

Upperside rufous. Apical half of the anterior wing greenish-black, crossed by a zigzag white band and a row of six white spots; two dark marks in the cell and a broken black line near the outer margin. Posterior wing with the outer margin dusky, crossed by a broken black line; two black marks in the cell. Underside like *H. Chalcis*, but much brighter in colour.

Exp. $2\frac{1}{2}$ inches.

Hab.—Cameroons.

In the collection of H. Druce.

9. *Harma Corsandra*.

Upperside dark brown; both wings crossed beyond the middle with a rufous band. Anterior wing with four elongated white spots near the costal margin. A rufous mark at the end of the cell, and two black lines in the cell. Posterior wing with a rufous spot in the cell; both wings are traversed near the outer margin by a double black band of hastate spots. Underside pale ochreous at the base of both wings, both crossed by a dark-brown band; the white spots and the other markings as above, but very indistinct.

Exp. 3 inches.

Hab.—Angola.

In the collection of H. Druce.

10. *Adolias Lupina*.

Upperside dark brown; both wings crossed by a broad band of paler brown. Anterior wing crossed near the base by three black lines; a black line near and at the end of the cell; a whitish spot at the apex, and a band of indistinct dark-brown spots crossing both wings near the outer margin. Underside greenish-white, dusky at the apex of anterior, the white spot as above; five black lines in the cell; both wings crossed beyond the middle by a double band of faint brown spots; three black lines near the base of the posterior wing.

Exp. $3\frac{1}{2}$ inches.

Hab.—Philippine Islands (Pryer).

In the collection of H. Druce.

11. *Paphia Hauxwelli*.

Form of *P. Philamena*. Upperside glossy green. Anterior wing crossed from the costal margin to the anal angle by a broad black band. Posterior wing blackish round the outer margin; three minute white spots at the anal angle. Underside rich reddish-brown, irrorated with white. Anterior wing crossed by three dark-brown bands; a row of minute white spots from the apex to the anal angle. Posterior wing crossed by four dark-brown bands; three spots near the anal angle outwardly black, inwardly white.

Exp. $2\frac{1}{4}$ inches.

Hab.—Pebas, Upper Amazons (Hauxwell).

In the collection of H. Druce.

On the underside this species is much like *P. indigotica*, but quite distinct above.

12. *Mesosemia Grandis*.

Upperside deep black. Anterior wing crossed near the middle by a broad, bright-blue band. Posterior wing with the middle of the outer margin produced into a lengthened lobe; the outer half broadly banded with light blue, leaving the half of the posterior margin and the anal angle deep black. Underside like *M. Gaudiolum*, without the white spots.

Exp. $1\frac{1}{2}$ inch.

Hab.—Chiriqui.

In the collections of H. Druce and Osbert Salvin.

13. *Necyria Whitelyiana*.

Upperside bronzy-green, darkest at the base of the wings; all the nervures deep black; a bright carmine band at the end of the cell, widest at the costal margin. Posterior wing with a dull carmine spot at the anal angle. Underside as above, except that in some lights it shows a bluish-green gloss, and the carmine spot at the base is very much larger. The sides of the abdomen are bright carmine.

Exp. $1\frac{3}{4}$ inch.

Hab.—Peru, Huasampilla (Whitely).

In the collection of H. Druce.

14. *Necyria Butleria*.

Upperside deep black. Anterior wing crossed beyond the cell by two bands curved inwards, the inner one bright scarlet, the other bright glossy-blue. Posterior wing with a broad glossy-blue band from the apex to the anal angle, outer margin black; an oval-shaped scarlet spot at the anal angle. Underside anterior wing crossed by a wide band of brilliant green; a scarlet spot at the anal angle. Posterior wing rich dark-blue, bordered with green; a large oval-shaped scarlet spot at the anal angle; the sides of the abdomen scarlet.

Exp. $2\frac{3}{4}$ inches.

Hab.—New Grenada.

In the collection of H. Druce.

15. *Anteros Medusa*.

Upperside blackish. Anterior wing with two transparent spots; the first at the end of the cell, the second below and nearer the outer margin. Posterior wing greyish at the base. Underside yellow, thickly irrorated with rich brown. Anterior wing: the spots the same as above, and dark red-brown at the base, crossed by two metallic bands; a gold spot at the end of the cell, dusky at the anal angle. Posterior wing dark red-brown at the base, crossed by two indistinct bands of gold; round the outer margin of both wings a narrow red-brown band, bordered on each side with a gold line. The fringe alternately yellow and red.

Exp. $1\frac{1}{8}$ inch.

Hab.—Panama.

In the collection of H. Druce.

APR 30 1874

VI. *Catalogue of the Phytophagous Coleoptera of Japan, with descriptions of the species new to science.*
By JOSEPH S. BALY, F.L.S. (continued from page 99, vol. for 1873).

[Read 1st December, 1873.]

Fam. EUMOLPIDÆ.

Genus XANTHONIA, Baly.

Journ. of Entom. ii. (1863), p. 151.

The present insect is peculiar to Japan; all the other known species of the genus are American.

Xanthonia placida.

Oblonga, fulva, pilis suberectis concoloribus vestita, pedibus antennisque flavis, oculis nigris.

Long. $1\frac{1}{2}$ lin.

Hab.—Nagasaki; apparently common.

Head shining, sparingly clothed with fulvous hairs; vertex distantly punctured; eyes large, prominent, black; antennæ pale yellow, slightly stained with fulvous towards the apex. Thorax scarcely broader than long, convex, sides rounded, narrowed at base and apex; disk very slightly flattened, closely and deeply punctured. Elytra broader than the thorax, sides parallel; above convex, regularly and closely punctate-striate, the punctures deeply impressed. Legs pale yellow, unguiculi pale piceous.

This insect has the disk of the thorax much less depressed than in the American species of the genus.

Genus LYPESTHES, Baly.

Journ. of Entom. ii. (1863), p. 152.

This genus at the present time contains only a single species, which has also been sent from Northern China by Fortune.

Lypestes atra, Motsch.Etud. Ent. 1860, p. 22 (*Fidia*).*Hab.*—Japan; also Northern China.

This insect appears to be common.

Genus DEMOTINA, Baly.

Journ. of Entom. ii. (1863), p. 158.

The four species described in the present paper are all peculiar to Japan.

Demotina fasciculata.

Oblonga, convexa, picea, nigro-piceo-maculata, pilis squamæformibus adpressis fuscis vestita, antennis pallide fulvis; elytris profunde punctatis, punctis prope suturam seriatim dispositis, utrisque infra basin transversim excavatis, spatio basilari elevato, piceo; pilis albidis et fuscis hic illic in fasciculos congregatis, vestitis.

Long. 2 lin.

Hab.—Nagasaki.

Clypeus transversely elevated, its anterior border tri-emarginate, surface deeply punctured; upper part of face and front coarsely rugose-punctate, clothed with adpressed fuscous hairs; eyes large, prominent, black; antennæ fulvous, their outer half stained with fuscous. Thorax about one-third broader than long, sides rounded, serrate; above transversely convex, flattened on the hinder disk, extreme apex subcylindrical; surface irregularly excavated, coarsely but not deeply rugose-punctate, covered with adpressed scale-like hairs; sides dark piceous. Scutellum trigonate, sinuate on the sides, clothed with fuscous scale-like hairs. Elytra much broader than the thorax, sides parallel, apex subacutely rounded; above convex, excavated below the basilar space, the latter on each elytron raised, its surface stained with dark piceous; coarsely and deeply punctured, clothed with large, white and fuscous scales, which form small irregular patches over the whole surface; humeral callus thickened, hinder portion of the disk impressed with large, shallow, ill-defined pits or excavations. Legs pale rufo-piceous, stained with fuscous. Thighs each armed beneath with a short acute tooth.

Demotina fasciata.

Oblonga, convexa, picea, pilis adpressis squamæformibus fuscis vestita, antennis fulvis, extrorsum infuscatis; elytris infra basin leviter excavatis, profunde punctato-striatis,

punctis disco exteriori apicemque versus confusis; pallide fulvo-piceis, piceo-maculatis, pilis albis, fulvis et fuscis variegatis, pone apicem fasciâ obliquâ maculisque pilorum nigrorum ornatis.

Long. 2 lin.

Hab.—Nagasaki.

Head rufo-piceous. Clypeus transverse, coarsely punctured, its anterior border broadly emarginate, notched on either side; upper part of face and front rugose-punctate, clothed with adpressed fuscous-white hairs; front impressed with a longitudinal groove; eyes black; antennæ fulvous, six or seven outer joints fuscous. Thorax nearly twice as broad as long, sides serrate, rounded, obliquely converging from behind the middle to the apex; above transversely convex, somewhat flattened on the disk, subcylindrical at the extreme apex; transversely excavated before the middle, closely covered with large, round, shallow punctures, and clothed with adpressed, fuscous, scale-like hairs. Elytra broader than the thorax, convex, rufo-piceous, coarsely and deeply punctured, the puncturing arranged in striæ near the suture, confused on the outer disk and towards the apex; whole surface clothed with adpressed white, fulvous and fuscous scales, rather narrower than those in *D. fasciculata*, which form irregular patches over the elytra; behind the middle is an oblique fascia of black scales, and towards the apex are some irregular patches of the same colour. Legs piceous, thighs paler, armed beneath with an acute tooth.

This insect may be known from *D. fasciculata* by the broader thorax and also by the transverse fascia of black scales behind the middle of the elytra.

Demotina decorata.

Oblonga, convexa, pallide picea, pilis adpressis squamæformibus pallide fulvis vestita, antennis fulvis; elytris profunde punctatis, punctis prope suturam seriatim dispositis, piceo-maculatis, pilis fulvis et albis variegatis.

Long. 1 lin.

Hab.—Nagasaki.

Upper half of head clothed with adpressed fuscous scale-like hairs; antennæ entirely fulvous; eyes prominent, black. Thorax one-third broader than long, sides serrate, rounded; upper surface moderately convex, subcylindrical at the apex, covered with large, round, shallow

punctures, and clothed with adpressed scale-like fuscous hairs. Elytra broader than the thorax, convex, deeply and coarsely punctured, the punctures arranged in longitudinal striæ near the suture, placed irregularly on the outer disk and towards the apex; clothed with fuscous and white scale-like hairs, which form irregular patches on the surface. Thighs each armed beneath with an acute tooth, those on the anterior pair nearly obsolete.

Demotina modesta.

Anguste oblonga, convexa, fulvo-picea, pilis squamæformibus adpressis fuscis vestita, antennis fulvis; elytris punctatis, punctis magnis, minus fortiter impressis, prope suturam seriatim dispositis.

Long. $1\frac{1}{2}$ —2 lin.

Hab.—Nagasaki.

Head rugose, clothed with adpressed scale-like hairs; eyes prominent, black. Thorax nearly one-half broader than long, sides rounded, serrate; above moderately convex, slightly flattened behind the middle, subcylindrical at the apex; surface closely rugose-punctate, the punctures large and very shallow; clothed with adpressed scale-like hairs. Elytra oblong, broader than the thorax, convex, covered with large shallow punctures, arranged in longitudinal striæ near the suture; surface densely clothed with adpressed scales. Thighs each armed beneath with a minute tooth; notch at apex of hinder tibiæ nearly obsolete.

Genus BROMIUS, Chevr.

Baly, Journ. of Ent. ii. (1865), p. 439.

Bromius Japanus, Motsch.

Etud. Ent. (*Heteraspis*), 1857, p. 37.

Hab.—Japan; also Northern China, collected by Messrs. Fortune and Bowring.

I have not seen Japanese specimens of this insect.

Genus ACROTHINIUM, Marshall.

Recens. Corynod., Proc. Lin. Soc. 1864.

Baly, Journ. of Entom. ii. (1865), p. 441.

Acrothinium Gaschkevitchii, Motsch.

Etud. Ent. (*Heteraspis*), 1860, p. 23.

Hab.—Japan and Northern China.

Genus *CHRYSOCHUS*, Redt.

Faun. Aust. p. 558.

Chrysochus Chinensis, Baly.

Ann. and Mag. of Nat. Hist. 1859, p. 125.

Hab.—Hiogo; also Northern China and Eastern Siberia.

The single specimen from Japan seen by me is rather less than the usual size, and is less distinctly excavated below the basilar space; in all other particulars it agrees with the typical form. According to Mr. Lewis it is a mountain species; and rare.

Genus *SCELODONTA*, Westwood.

Proc. Zool. Soc. 1837, p. 129; Baly, Phyt. Malay. 155.

Scelodonta Lewisii.

Oblonga, convexa, cuprea aut viridi-ænea, nitida, antennis extrorsum nigris; thorace fortiter subcrebre punctato, interstitiis irregulariter et transversim elevato-strigosis; elytris seriatim punctatis, punctis ad apicem minus fortiter impressis.

Long. $1\frac{2}{3}$ lin.

Hab.—Nagasaki; also Chusan and Shanghai.

Head strongly punctured, sparingly clothed with adpressed white hairs; interspaces granulose; front impressed with a longitudinal groove. Thorax subcylindrical above, sides rounded; surface impressed with large round punctures, their interspaces, more particularly on the sides and base, transversely elevate-strigose. Scutellum transverse, pentagonal, its surface impressed with a few large punctures. Elytra much broader than the thorax; humeral callus strongly thickened; surface punctate-striate, the punctures large and deeply impressed on the basal half, smaller and shallower towards the apex; space below the humeral callus on each elytron faintly depressed, transversely wrinkled.

Genus *PARIA*, Leconte.

Proc. Acad. Nat. Scienc. Philad. 1858, p. 85.

Body ovate, convex; antennæ filiform; eyes moderately prominent, surrounded above by a sunken orbit;

vertex more or less swollen. Thorax subconic, lateral border distinct. Elytra broader than the thorax, convex, punctate-striate. Legs robust; thighs often armed beneath with an acute tooth; four hinder tibiæ notched at the apex; claws bifid. Anterior episternum separated from the prosternum by a deep groove, scapulariform, its outer angle produced upwards in front of the anterior angle of the thorax.

I do not see any reason for separating *Paria* from *Typophorus*, but for the present retain Leconte's name.

Paria variabilis.

Ovata, convexa, nigra, nitida, facie, antennarum basi, thorace pedibusque rufo-fulvis; elytris regulariter punctato-striatis, plagâ humerali apiceque rufo-fulvis.

Var. A.—Elytris rufo-fulvis, plagâ magnâ deltoideâ a basi fere ad apicem extensâ, nigrâ.

— B.—Thorace elytrisque nigris.

Long. $1\frac{1}{3}$ lin.

Hab.—Nagasaki, Japan; also Eastern Siberia.

Front smooth, nearly impunctate; six lower joints of antennæ fulvous, the rest black or nigro-piceous. Thorax one-third broader than long; sides rounded, converging from base to apex, above subconic, remotely punctured; lateral border narrowly edged with piceous. Scutellum semi-ovate. Elytra broader than the thorax, convex, regularly punctate-striate, the interspaces smooth, impunctate; shining black, a humeral patch on each elytron, together with the apex, rufo-fulvous. Four hinder thighs each armed beneath with a minute tooth; tarsi sometimes stained with piceous.

Very close to *P. melanura*, Walsh: separated from that species by the smooth impunctate front and vertex.

Paria robusta.

Late ovata, convexa, nigra, nitida, antennis basi fulvis, tibiis obscure fulvis, tarsis pallide piceis; thorace minus remote punctato.

Long. $1\frac{1}{2}$ lin.

Hab.—Nagasaki; a single specimen in Mr. Lewis's collection.

Clypeus transverse, pentangular, vertex and front shining black, impunctate; six lower joints of antennæ

fulvous, the rest black. Thorax nearly twice as broad as long; above transversely convex, impressed with large shallow punctures. Elytra broader than the thorax, regularly punctate-striate, interspaces smooth and shining, impunctate. Thighs armed beneath with a minute tooth.

Easily distinguished from the preceding species by its broader and more closely punctured thorax and by its broader form.

Genus NODOSTOMA, Motsch.

Schrenck, Reis. im Amur-land, ii. p. 176.

Only one of the species is peculiar to the Japanese Islands; the others are also found on the adjacent Asiatic continent. *N. æneipenne* occurs abundantly in Eastern Siberia.

Nodostoma æneipenne, Motsch.

A. Caput, thorax pedesque rufo-testacei.

N. æneipenne, Motsch., Schrenck, Reis. im Amur-land, p. 177.

B. Corpus supra viridi- aut cupreo-metallicum, pedibus fulvis.

N. fulvipes, Motsch, l. c. p. 176.

C. Corpus ut in B, pedibus nigris.

N. atripes, Motsch, Etud. Entom. 1860, p. 23.

D. Corpus totum pallide rufo-testaceum.

N. rufo-testaceum, Motsch., Schrenck, l. c. p. 177.

Hab.—Japan, apparently common; also Eastern Siberia.

It will be seen that the present species is very variable in colour, it also varies greatly in the degree of punctation of the thorax.

Nodostoma hirticolle.

Anguste oblongum, convexum, nigrum, nitidum, pedibus antennisque obscure fulvis, his extrorsum infuscatis; thorace transverso, lateribus obsolete bis-angulatis, disco sat profunde punctato, sparse griseo-villoso; elytris infra basin excavatis, fortiter punctato-striatis, punctis infra basin et prope marginem confusis.

Long. $1\frac{3}{4}$ lin.

Hab.—Nagasaki.

Head deeply punctured, sparingly clothed with fine griseous hairs; front impressed with a longitudinal groove; anterior edge of clypeus and labrum rufo-fulvous. Thorax twice as broad as long; sides rounded, indistinctly angled behind and just before the middle, space between the angles straight and parallel; anterior and posterior angles each armed with an obtuse tooth; above convex, closely covered with large, round, deeply impressed punctures; surface sparingly clothed with fine griseous hairs. Elytra broader than the thorax, oblong, convex, excavated below the basilar space, deeply punctate-striate, the puncturing on the sub-basilar depression, on the inner stria near the suture, together with that on the outer border, confused and irregular. Four hinder tibiæ each armed beneath with a small tooth.

Nodostoma consimile.

Oblongum, convexum, nigrum, nitidum, antennis pedibusque fulvis; capite thoraceque nigro-piceis, hoc fortiter punctato, subcerebre foveolato-punctato, disci apice late fulvo; lateribus pone medium angulatis; elytris fulvis, fortiter punctato-striatis, punctis piceis; utrisque lineâ suturali, limbo laterali (hoc ante medium dilatato) plagâque transversâ, infra basin positâ, nigro-piceis.

Var. A. Elytris nigro-piceis, plagâ humerali fulvâ.

— B. Elytris totis nigro-piceis.

Long. 1—1 $\frac{1}{4}$ lin.

Hab.—Nagasaki, Tsu Sima; also Chusan.

Head deeply punctured; front impressed with a fine longitudinal groove; vertex, edge of clypeus and labrum fulvous. Thorax transverse; sides angulate behind the middle; disk shining, somewhat closely and deeply impressed with large round punctures; the colour varies greatly, being sometimes entirely nigro-piceous, in other specimens almost entirely fulvous. Elytra much broader than the thorax, regularly punctate-striate, the punctures piceous; basilar space on each elytron distinctly raised, free from punctures; immediately below this space is a transverse depression, on which is placed a transverse piceous or nigro-piceous patch, from the inner angle of which a line of the same colour runs upwards along the suture to the basal border (this patch is sometimes obsolete); suture and outer limb nigro-piceous; humeral callus elevated.

This insect closely resembles *N. 4-signatum*, Motsch., both in form and coloration: it may be at once known by the deep punctuation of the thorax.

Nodostoma flavo-pustulatum.

Ovatum, convexum, nigrum, nitidum, antennis flavis, extrorsum infuscatis, labro pedibusque fulvis; thorace transverso, pone medium angulato, fortiter punctato; elytris subfortiter punctato-striatis, nigro-piceis, utrisque maculâ parvâ basali, intra humerum positâ, pallide flavâ, ornatis.

Long. 1 lin.

Hab.—Nagasaki, Tsu Sima.

Head deeply punctured; front impressed with a longitudinal groove; eyes bordered above by a sunken orbit. Thorax nearly one-third broader than long; sides angulate behind the middle; above convex, subcylindrical at the apex, deeply punctured; anterior margin narrowly edged with fulvous. Elytra broader than the thorax, convex, transversely excavated below the basilar space, regularly punctate-striate, the punctures finer on the basilar space and towards the apex; shining black, humeral callus sometimes rufo-piceous; at the base of each elytron, just within the callus, is a narrow fulvous stripe. Four hinder thighs armed beneath with a minute tooth.

Nodostoma pallidulum.

Late oblongum, convexum, pallide fulvum, nitidum, oculis antennisque extrorsum nigris; thorace transverso, fortiter subremote punctato; elytris infra basin transversim excavatis, sat fortiter punctato-striatis.

Long. 2 lin.

Hab.—Nagasaki.

Head coarsely but not closely punctured, vertex broad, smooth and moderately convex; eyes bounded above by a sunken orbit; apex of fourth joint of antennæ piceous, seven outer joints black. Thorax rather more than twice as broad as long, sides rounded at the base, thence obliquely converging to the apex, anterior and posterior angles each armed with an obtuse tooth; above transversely convex, deeply punctured, the punctures large, distant on the disk, rather more crowded at the sides. Elytra broader

than the thorax, convex, transversely excavated below the basilar space, the latter slightly raised; punctate-striate, the punctures strongly impressed on the basal half of the surface, finer and less deeply impressed on the basilar space and behind the middle; interspaces impressed with a few fine punctures. Hinder thighs armed beneath with a small tooth.

Genus NODINA, Motsch.

Etud. Entom. 1858, p. 109.

Baly, Phyt. Malay. p. 259.

Nodina chalcosoma.

Late ovata, convexa, nitida, subtus nigra, supra viridivirena, antennis pedibusque obscure fulvis; thorace fortiter punctato; elytris regulariter punctato-striatis, disco exteriori tricostatis.

Var. A. Elytrorum costis plus minusve obsolete.

— B. Thoracis apice piceo, elytris obscure fulvis, piceo-tinctis.

Long. 1 lin.

Hab.—Nagasaki; also Hong Kong.

Head smooth, distinctly punctured; front bounded on either side anteriorly by an oblique groove; four lower joints of antennæ obscure fulvous, the rest black. Thorax nearly twice as broad as long, sides rounded, nearly parallel at the base, thence converging to the apex, basal lobe moderately produced, obtuse; above convex, deflexed on either side in front, surface rather deeply but not very closely punctured. Scutellum transverse, obtusely truncate. Elytra scarcely broader than the thorax, deeply and regularly punctate-striate; three interspaces on the outer disk each elevated into a strong costa, the middle one commencing on the humeral callus, the others each occupying the interspace on either side; the three costæ, confluent at the base, run downwards to below the middle of the disk, when they suddenly terminate; the upper edge of the middle one is deeply sinuate. They are strongly marked in the specimens from which I have drawn up the above description, but are much less distinct in all the others that I have examined.

Genus COLASPOSOMA, Laporte.

Silb. Rev. Ent. i. p. 22.

Baly, Phyt. Malay. p. 270.

Colasposoma cyaneum, Motsch.

Schrenk, Reis. in Amur-land, ii. p. 177.

Hab.—Japan and Eastern Siberia.

Fam. CHRYSOMELIDÆ.

Genus TIMARCHA, Lat.

Timarcha tenebricosa, Fabr.

Hab.—Hakodadi (Whitely); a single specimen in the British Museum.

Genus CHRYSOMELA, Linn.

Faun. Suec. p. 160.

Three species of this genus have up to the present time been found in Japan. One is common to these islands and to Manchuria, the second is found in Northern China and Eastern Siberia (rivers Angara and Amour), and the third is spread over Northern Asia and Eastern Europe.

Chrysomela Japonica.

Elongato-ovata, postice paullo ampliata, valde convexa, rufo-cuprea, purpureo- aut æneo-tincta, subtus nigro-cærulea; thorace sat fortiter punctato, lateribus incrassatis, rotundatis, postice angustatis; elytris ovatis, subcrebre punctatis, punctis prope suturam subseriatim dispositis.

Long. $3\frac{1}{2}$ —4 lin.

Hab.—A single specimen collected at Hakodadi, by Mr. Whitely, in Mr. Lewis's collection; a second in my cabinet was taken in Japan by Mr. Moor; I also possess the species from Manchuria, collected by Mr. Bowring.

Head short, remotely punctured; face between the eyes impressed with two large oblong foveæ. Thorax twice as broad as long, sides thickened, gradually diverging from the base to the middle, thence obliquely rounded and converging to the apex; anterior angles subacute; disk moderately convex, deeply but not very closely punctured, the punctures round, congregated in irregular patches on the surface; thickened sides bounded within by a shallow expression, which extends the whole length of the thorax.

Elytra ovate, as wide as the base of the thorax, sides rounded and diverging at the extreme base, then obliquely diverging to beyond the middle, thence regularly rounded to the apex. Above convex, the convexity increasing from the base to beyond the middle; surface more closely punctured than the thorax, the puncturing arranged in irregular striæ; on the disk are seen the faint indications of two or three longitudinal vittæ. Terminal joints of maxillary palpi ovate, not broader than the penultimate.

This insect is closely allied to *Ch. Mahesa*, 4-*impressa* and *Fortunei*. It differs from all in the absence of the transverse sulcation below the basilar space of the elytra.

Chrysomela consimilis.

Lithoptera subænea, Motsch. Schrenck, Reis. ii. p. 229.

Hab.—Nagasaki, Japan; also Eastern Siberia and Northern China.

The specific name used by Motschulsky for this insect having been previously employed by Suffrian, I have been compelled to change it.

Chrysomela aurichalcea, Gebl.

Ledeb. Reis. p. 212.

Chrysomela Stålii, Baly, Journ. Ent. i. (Oct. 1860), p. 95.

Chrysomorpha quadrangulata, Motsch.; Schrenk, Reis. in Amur-land, ii. 226.

Anopachys violaceicollis, Motsch. Etud. Ent. 1861, p. 21.

Apterosoma angusticollis, Motsch.; Schrenk, Etud. Ent. 1860, p. 23.

Hab.—Nagasaki, Japan; also Northern China (Fortune), Siberia (rivers Angara and Amour), and Eastern Europe.

This species is found on the Chrysanthemum.

Genus GASTROLINA, Baly.

Ann. and Mag. Nat. Hist. (July, 1859).

Linastica, Motsch.; Schrenck, Reis. ii. p. 200 (Dec. 1860).

Gastrolina thoracica, Baly. c

Trans. Ent. Soc. 1864, p. 228.

Hab.—Japan, collected by Mr. Bowring.

Genus LINA, Redt.

Faun. Austr. p. 551.

✓ *Lina anea*, Lin.

Faun. Suec. 161, 510 (*Chrysomela*).

Hab.—Japan, Yokohama, Hakodadi; also Northern Asia, Siberia, and Northern and Middle Europe.

Lina Populi, Lin.

Faun. Suec. 164, 523 (*Chrysomela*).

Hab.—Yokohama, Japan; spread over Northern Asia, and Northern and Middle Europe.

Lina 20-punctata, Scop.

Coccinella 20-punctata, Scop. Faun. Carn. 78, 242.

Hab.—Nagasaki, Japan; also Manchuria (A. Adams), Siberia, and nearly the whole of Europe.

Genus GONIOCTENA, Redt.

Faun. Austr. p. 557.

Of the three species enumerated below one only is proper to Japan.

Gonioctena rufipes, Gyl.

Ins. Suec. iii. 486, n. 29 (*Chrysomela*).

Hab.—Hakodadi, Japan; also Northern Asia and the whole of Northern and Middle Europe.

Gonioctena rubripennis, Baly.

Ann. and Mag. Nat. Hist. 1862, p. 28.

Hab.—Nagasaki, also Northern China; on Spanish chestnut.

Gonioctena nigro-plagiata, Baly.

Ann. and Mag. Nat. Hist. 1862, p. 28.

Hab.—Japan. Collected by Mr. Bowering.

Genus *PLAGIODERA*, Redt.

Faun. Austr. p. 553.

Plagiodesa distincta.

Ovato-rotundata, subtus nigra, nitida, pedibus cyaneis; supra cyanea aut cærulea, antennis pallide piceis, extorsum nigris; thorace minute punctato, elytris distincte subseriatim punctatis.

Long. 2 lin.

Hab.—Nagasaki; on sallow.

Head minutely punctured, front impressed with a longitudinal depression, which runs upwards from the apex of the triangular clypeus; four lower joints of antennæ pale piccous, stained above with cyaneous. Thorax more than three times as broad as long, sides obliquely converging from behind forwards, rounded and more quickly converging at the apex, anterior angles rounded; surface finely and remotely punctured, punctures on the sides larger and more deeply impressed; interspaces between the punctures closely and minutely punctured. Elytra much broader than the thorax; shoulders broadly rounded; above moderately convex, depressed on the disk, distinctly punctured, the puncturing disposed here and there in irregular striæ, interspaces finely punctured; on the outer disk, just within the lateral border, is an ill-defined longitudinal costa.

Larger than *P. armoraciæ*; thorax broader and more finely punctured; punctuation of elytra also finer and less crowded.

Genus *PHÆDON*, Latr.

Règn. Animal, édit. 2e, v. p. 151.

The two species described below are new, and appear to be confined to the Japanese Islands.

Phædon Brassicæ.

Ovatum, convexum, nitidum, subtus nigrum, supra obscuro-æneum, antennis nigris; capite thoraceque fortiter punctatis; elytris regulariter punctato-striatis, interspatiis lævibus, planis.

Long. $1\frac{3}{4}$ —2 lin.*Hab.*—Nagasaki; on turnips.

Head deeply punctured; clypeus slightly depressed, pentangular, separated from the upper part of the face by

a smooth impunctate oblique space, which extends on either side from the inner edge of the antenna, and meets its fellow at the apex of the clypeus. Thorax more than twice as broad as long; sides converging and slightly rounded from the base upwards, more quickly rounded at the apex; anterior angles obtuse; above transversely convex, strongly but not very closely punctured; the punctures rather less crowded on the disk. Elytra broader than the thorax, convex; regularly punctate-striate, the punctures smaller and rather less deeply impressed than those on the thorax; striæ faintly sulcate; interspaces plane, nearly impunctate, a few indistinct punctures being visible under a lens. Anterior coxæ slightly elevated.

✓ *Phædon incertum.*

Ovatum, convexum, nitidum, subtus nigrum, supra nigro-æneum, antennis nigris; capite fortiter punctato; thorace lævi, tenuiter punctato, punctis disco remote-lateribus minus remote-dispositis; clytris regulariter punctato-striatis, interspatiis planis.

Long. $1\frac{1}{3}$ lin.

Hab.—Nagasaki; a single specimen.

Head strongly punctured; clypeus shorter than in *Ph. Brassicæ*, pentangular; two smooth spaces, not contiguous at the apex, separate it from the upper face. Thorax more than twice as broad as long; sides obliquely converging and rounded from base to apex, more quickly rounded near the anterior angles, the latter subacute; upper surface smooth, finely but distinctly punctured, the punctures distant on the disk, rather larger and more closely placed on the sides. Scutellum semiovalate, impressed on either side at the base with a small fovea. Elytra similar in form and punctuation to the last species.

Closely allied to *Ph. Brassicæ*. The subacute angles of the thorax, together with the more finely punctured disk of the latter, at once separate it from that insect.

Genus GASTROPHYSA, Redt.

Faun. Austr. p. 553.

✓ *Gastrophysa atrocyanæa*, Motsch.

Schrenck, Reisen in Amur-land, ii. 222.

Hab.—Japan; also Northern China and Eastern Siberia.

Fam. GALLERUCIDÆ.

Subfam. GALLERUCINÆ.

Genus ADORIUM, Fabr.

Sys. El. i. p. 409.

Adorium Japonicum.

Ovatum, convexum, nigrum, nitidum, thorace flavo, maculis 5 nigris, 1, 4 dispositis ornato, scutello elytrisque nigro-cæruleis.

Long. 4 lin.

Hab.—Nagasaki ; also China.

Encarpæ separated from the front by a deep transverse groove ; antennæ three-fourths the length of the body, three lower joints fulvous beneath. Thorax obscure flavous ; a narrow line along the middle of the basal margin, a small spot immediately in front of the latter, and four others arranged transversely across the middle of the disk, black. Elytra closely and rather deeply but finely punctured.

Genus ADIMONIA, Laich.

Tyr. Ins. i. 191.

Adimonia extensa, Motsch.

Etud. Ent. 1861, p. 22.

Hab.—Japan.

This species varies in colour from dark fuscous to entirely black.

Genus GALLERUCA, Geoff.

Joannis, Mon. Galler., L'Abeille, iii. p. 80.

One species only, *G. Sagittariæ*, is found in Europe ; two others are of the European type ; the rest are exotic forms of the genus. Two species, *annulicornis* and *vittaticollis*, are as yet peculiar to Japan.

Galleruca tibialis.

Elongato-oblonga, convexa, fusco-fulva, fulvo-sericea, mandibulis, oculis, antennis, tibiis tarsisque nigris ; tho-

race transverso, irregulariter transversim concavo, rugoso-punctato; elytris oblongis, fortiter et crebre punctatis.

Long. 3—4 lin.

Hab.—Nagasaki.

Head prominent, rugose-punctate, vertex impressed with a piceous longitudinal groove; eyes prominent, rotundate. Thorax more than twice as broad as long, sides nearly parallel, rotundate; disk transversely concave, irregularly excavated. Scutellum trigonate, its apex truncate. Elytra oblong, broader than the thorax, closely covered with large round punctures.

Galleruca punctato-striata, Motsch.

Etud. Ent. ix. p. 25 (1860).

Hab.—Japan (Gaschkevitch); also Northern China (Fortune).

Galleruca maculicollis, Motsch.

Etud. Ent. ii. 49 (1854).

Hab.—Nagasaki, Yokohama; also China.

This species varies greatly in the coloration of the under surface. The description of Motschulsky, drawn up from a Chinese specimen, gives the breast and sides of abdomen as black; the insects collected by Mr. Lewis at Nagasaki are quite pale beneath, but one in my possession from Yokohama has the underside entirely black.

Galleruca annulicornis.

Subelongata, convexa, fusca, fusco-sericea; subtus fulva, femoribus apice, tibiis extrorsum tarsisque nigris; capite granuloso-punctato, collo maculis tribus, oculis antennisque nigris, his fulvo-annulatis; thorace transversim concavo, ruguloso, puncto basali et utrinque vittâ laterali, apice abbreviatâ, nigris; scutello nigro; elytris subcrebre rugoso-punctatis, fulvo-marginatis, vittâ brevi humerali nigrâ instructis.

Long. 4 lin.

Hab.—Hiogo.

Encarpæ transverse, separated from each other by a longitudinal groove; eyes prominent, shining black; antennæ nearly as long as the body, bases of all the joints

(the first excepted) fulvous; a large patch on either side the neck, and a smaller one on the vertex, black. Thorax more than twice as broad as long, disk transversely concave, more deeply excavated on the middle and on either side, rugulose-punctate, a small round spot on the middle of the base and a broad stripe on the lateral margin, abbreviated at the apex, black. Scutellum trigonate, its apex truncate. Elytra broader than the thorax, narrowly oblong, sides parallel, their outer margin broadly margined, reflexed; surface rather coarsely and somewhat closely punctured, interspaces granulose-rugose.

Galleruca vittaticollis.

Ovata, convexa, fusco-testacea, fulvo-sericea, pleuris, vertice pedibusque piceis, femoribus subtus pallidis, scutello antennisque nigris; thorace profunde punctato, utrinque excavato, medio vittâ latâ nigrâ, basi et apice abbreviatâ ornato; elytris crebre, sat profunde punctatis.

Long. $2\frac{1}{4}$ lin.

Hab.—Nagasaki, Yokohama.

Vertex rugose-punctate, its surface nearly covered with a large black patch; eyes, labrum and antennæ also black, basal joints of the latter piceous beneath; encarpæ subquadrate, contiguous; carina linear, strongly raised; epistome bounded above by a strongly-raised ridge. Thorax three times as broad as long, sides angulate, sinuate behind the middle, anterior and posterior angles distinct, the former armed with an obtuse tooth, the latter acute; upper surface deeply excavated on either side, strongly and deeply impressed with large round punctures, slightly but distinctly excavated in the middle, just behind the apical border. Scutellum trigonate, black. Elytra broader than the thorax, oblong, rather closely punctured, the punctures similar to those on the thorax, but rather smaller and less deeply impressed.

Galleruca Sagittariæ, Gyll.

Ins. Suec. iii. 511.

Hab.—Hiogo, Japan; also Northern Asia, and nearly the whole of Europe.

Galleruca distincta.

Anguste oblonga, pallide fusca, fusco-sericea; abdomine, vertice, antennis (his basi exceptis), scutello oculisque

nigris, pedibus piceo-tinctis, tarsis nigro-piceis; thorace utrinque excavato, medio vittâ elevatâ bifurcatâ nitidâ instructo; elytris parallelis, fortiter punctatis, opacis, utrisque vittâ submarginali piceâ instructis.

Long. 2—2 $\frac{1}{4}$ lin.

Hab.—Nagasaki.

Head finely rugose-punctate; encarpæ transverse, contiguous, eyes scarcely prominent, black; antennæ two-thirds the length of the body, black, base of lower joints fuscous. Thorax twice as broad as long, sides rounded, bisinuate, hinder margin broadly sinuate, anterior and posterior angles each armed with an obtuse tubercle; disk shining, deeply excavated on either side; excavated portion fusco-sericeous, opaque, rest of the surface glabrous; on the anterior half of the middle disk is an indistinctly raised, smooth, bifurcate vitta; behind the latter, near the basal border, are a few large, coarse punctures. Scutellum truncate, black or pitchy-black. Elytra broader than the thorax, parallel, moderately convex, strongly punctured, each elytron with an ill-defined submarginal pitchy stripe, which, commencing at the base, runs downward at a little distance from the lateral border and extends nearly to the apex.

Genus ÆNIDEA, Baly.

Palpoxena, olim.

Ænidea armata.

Elongata aut subelongata, nigra, nitidâ, capitis vertice elytrisq; cyaneis; facie flavâ, antennis pedibusq; pallide piceis, illis basi tibiisque anticis flavis; thorace tenuiter et remote punctato, pone medium transversim impresso.

Var. A. Antennis pedibusq; fere totis nigris, facie nigro-piceâ.

Mas.—Clypeo ampliato, concavo, apice inter antennis cornu cylindrico, apice capitato, instructo.

Long. 2 $\frac{1}{2}$ —3 $\frac{1}{2}$ lin.

Hab.—Nagasaki, Hiogo, Tsu Sima; also Manchuria.

This insect varies greatly in size and also to some extent in coloration, the smaller specimens being generally more brightly coloured than the larger ones. Basal half of antennæ more or less fulvous, stained with piceous above; clypeus enlarged and produced in the ♂, armed at the apex with a short cylindrical horn, the upper end of which is dilated into a flattened head; ♀ unarmed; encarpæ dis-

tinct, transverse, slightly curved, dilated on their inner side, divided from each other by the broad carina, and separated from the front by a deep groove. Thorax transverse, finely and distantly punctured, impressed just behind the middle of the disk with a broad ill-defined transverse groove, abbreviated at either end. Scutellum trigonate. Elytra broader than the thorax, parallel, slightly depressed transversely below the basilar space, distinctly punctured.

Ænidea ornata.

Elongata, obscure fulva, nitida, tarsi totis, antennarumque articulis dorso, piceis, femoribus tibiisque extrorsum nigro-lineatis; elytris nigris, utrisque vittâ latâ albâ, a paulo infra basin ad longe pone medium extensâ, apice intus fere ad suturam productâ, instructis.

Long. $2\frac{1}{2}$ —3 lin.

Hab.—Nagasaki; also Shanghai.

Head shining, impunctate; encarpæ thickened, transverse, scapulariform, their upper half contiguous, their lower half separated by the narrow compressed carina; on the lower edge of the front, and bounded beneath by the encarpæ, is a deep oblong fovea. Thorax transverse, shining rufo-fulvous or fulvous, impressed just below the middle of the disk by a broad ill-defined transverse groove, similar in form to the one on the thorax of *Æ. armata*. Scutellum narrowly trigonate. Elytra wider than the thorax, parallel, slightly excavated below the basilar space, very finely punctured, shining black; on each elytron is a broad white vitta, which, commencing just below the base, runs down the outer disk for four-fifths of its length; it then curves suddenly inwards and terminates close to the suture.

Ænidea abdominalis.

Subelongata, nigra, nitida, capite (antennis exceptis), thorace abdomineque sanguineis; thorace fere impunctato, late transversim excavato.

Var. A. Abdomine nigro, apice sanguineo.

Long. $2\frac{3}{4}$ lin.

Hab.—Nagasaki.

Head smooth, impunctate; encarpæ slightly raised; antennæ black, two or three lower joints testaceous beneath and at the base. Thorax about one-fourth broader than long, sides straight and parallel, anterior and pos-

terior angles each armed with an obtuse tubercle; hinder margin truncate, notched on either side just within the outer angle; surface smooth, impressed with a few fine punctures, visible only under a lens; hinder disk impressed with a broad, shallow, transverse, semi-lunate excavation. Scutellum oblong, its apex obtusely rounded. Elytra slightly increasing in width towards the apex, distinctly punctured, shining black.

Ænidea? basalis.

Elongata, angustata, fulva, nitida, capitis dorso, antennis, basi exceptis, pectore abdomineque nigris; thorace impunctato, disco transversim impresso, margine basali spinis obtusis erectis duabus armato; elytris thorace latioribus, parallelis, tenuiter punctatis, basi nigro-cæruleis aut nigris; femoribus basi, tibiis apice tarsisque piceis.

Var. A. Elytrorum plagâ communi basali ovatâ nigrâ.

Mas.—Elytris infra basin foveâ magnâ communi obcordatâ impressis; tarsorum anticorum articulo basali incrassato.

Long. $2\frac{3}{4}$ lin.

Hab.—Satsuma, Japan; also China (Shanghai).

Head strongly exserted, smooth, impunctate; encarpæ large, ill-defined, contiguous; antennæ robust, nearly three-fourths the length of the body; basal joint nigro-fulvous, second, third and fourth pale piceous; the apices of the third and fourth, together with the whole of the remaining joints, black, clothed with coarse griseous hairs; mouth piceous. Thorax rather broader at the base than long, sides obliquely diverging from the base nearly to the middle, then rounded and slightly converging to the apex; anterior and posterior angles distinct, their apices obtuse; hinder margin armed on either side the middle with a stout, erect, obtuse tooth; disk transversely excavated. Scutellum large, subtrigonal, piceous. Elytra broader than the thorax, parallel, surface finely but not closely punctured; in the ♂ a short distance below the scutellum is a large common obcordate fovea, the surface of the elytra surrounding which is distinctly thickened; basal fifth of surface bluish- or pitchy-black; this basal band sometimes contracted into a large common oval spot, placed just below the scutellum.

Ænidea nigripes.

Angustata, parallela, flava, nitida, capite nigro, pedibus obscure fulvis, femoribus tibiisque dorso tarsisque nigris; thorace impunctato, disco utrinque impresso; elytris tenuiter punctatis.

Long. 2 lin.

Hab.—Nagasaki, unique in Mr. Lewis's collection.

Head strongly exerted, vertex swollen, impunctate; encarpæ raised, transverse, contiguous; eyes prominent, surrounded by a raised orbit; antennæ moderately slender, nearly equal to the body in length. Thorax transverse, sides narrowly margined, nearly straight, very feebly sinuate behind the middle, very slightly diverging from base to apex, anterior and posterior angles acute; anterior and hinder margins truncate, the latter deeply notched on either side, just within the outer angle; surface smooth, impunctate, disk impressed on either side with a large but shallow fovea. Scutellum semiovate. Elytra rather broader than the thorax, parallel, finely punctured. Legs sparingly clothed with whitish hairs.

The last two insects differ from those previously described in their much narrower form, but as they do not appear to present any structural differences from the more typical species, I have placed them for the present in the genus.

Genus CNEORANE, Baly.

Ent. Month. Mag. ii. 97.

Through an unfortunate blunder the tibiæ in my diagnosis of the genus are described as being each armed at the apex with a spine; they are entirely unarmed.

Cneorane elegans.

Oblongo-ovata, postice ampliata, convexa, nitida, rufotestacea, oculis antennisque nigris, his basi testaceis; pectore abdomineque obscure viridi-metallicis; elytris viridireneis; tarsis omnibus pedibusque posticis piceis, pedibus quatuor anterioribus piceo-tinctis.

Long. $2\frac{1}{2}$ — $3\frac{1}{4}$ lin.

Hab.—Nagasaki.

Head shining, impunctate, front separated from the encarpæ by a transverse groove; encarpæ transverse, contiguous; eyes shining black; antennæ equal to the body

in length. three lower joints testaceous, stained above with black. Thorax one-third broader than long, sides straight and diverging from the base to beyond the middle, thence rounded and slightly converging to the apex, anterior angles thickened, hinder armed with an obtuse tubercle; upper surface convex, obsoletely excavated on either side the disk, subremotely punctured. Scutellum trigonate, shining black. Elytra oblong, slightly dilated posteriorly, convex, transversely depressed below the basilar space, the latter on each elytron slightly raised; surface distinctly and somewhat closely punctured.

Genus ARTHROTUS, Motsch.

Etud. Ent. vi. p. 38 (1857).

Arthrotus niger, Motsch.

Loc. supra cit. p. 39.

Hab.—Simoda, Japan; M. Gaschkevitch (Motschulsky).

I have not seen specimens of this species, which does not appear to have been met with by Mr. Lewis.

Arthrotus variabilis.

Oblongo-ovatus, postice ampliatus, convexus, nitidus; thorace transverso, fortiter punctato; elytris subcrebre fortiter punctatis.

Mas.—Antennarum articulis 2^{do} et 3^{tio} brevibus, æqualibus.

Fcem.—Antennarum articulo 3^{tio} secundo duplo longiori.

A. Niger, genubus tarsisque piceis.

B. Niger, pedibus totis concoloribus.

C. Niger, antennis basi, elytris pedibusque fulvis, his piceo-tinctis.

D. Fulvus, capite (vertice antennisque basi exceptis) corporeque subtus, nigris; pedibus fulvis, piceo-tinctis.

Long. ♂ 2, ♀ 2½—3 lin.

Hab.—Nagasaki, Yokohama, Hiogo.

Vertex smooth, finely and remotely punctured; front deeply excavated above the encarpæ, excavation coarsely wrinkled; encarpæ oblique, separated from each other by the apex of the clypeus, the latter remotely punctured. Thorax more than twice as broad as long; sides margined, regularly rounded, hinder angles produced into an acute tooth, anterior angles truncate anteriorly, produced laterally into an acute tooth; hinder margin obtusely rounded,

anterior sinuate in the middle; upper surface transversely convex, coarsely and irregularly, but not very closely punctured; lateral border reflexed. Scutellum smooth, trigonate. Elytra broader than the thorax, oblong, slightly dilated posteriorly, convex, coarsely punctured. Pygidium in the ♂ transversely trigonate, its apex broadly rounded; in the ♀ this segment is less transverse and more acutely trigonate, the apex only being rounded.

This species differs from Motschulsky's description of *A. niger* in its larger size, and in its strongly punctured thorax; Motschulsky says that in *A. niger* this part is impunctate.

Arthrotus cyaneus.

Elongato-ovatus, niger, nitidus, abdomine nigro-piceo; supra cyaneus, antennis nigris; thorace transverso-quadrato, profunde subremote punctato; elytris anguste oblongis, fortiter punctatis.

Long. $1\frac{2}{3}$ lin.

Hab.—Hiogo; a single specimen.

Head exserted; antennæ slender, longer than the body, clothed with pale adpressed hairs, third joint half as long again as the second, the two together distinctly shorter than the fourth; encarpæ transverse, contiguous; vertex and front impressed with a few distant punctures. Thorax one-half broader than long; sides narrowly margined, straight, feebly bisinuate, slightly diverging from base to apex, anterior and posterior angles distinct, slightly produced, obtuse; disk smooth, transversely convex, strongly but not closely punctured. Scutellum large, wedge-shaped. Elytra much broader than the thorax, oblong-elongate, slightly dilated towards the apex, convex, coarsely punctured, the punctures smaller and less deeply impressed posteriorly; humeral callus moderately prominent. Legs slender.

Genus MELOSPILA, Baly.

Journ. Ent. i. (1861), p. 297.

Gallerucida, Motsch. Etud. Ent. 1860, p. 24.

M. Motschulsky's name *Gallerucida* has the priority of mine, but being the singular of *Gallerucidæ*, the name of the family, I have not adopted it.

This genus is entirely Asiatic; the two species men-

tioned in the present paper are non-metallic, but I possess several others undescribed, brilliantly metallic, from Northern India.

Melospila bifasciata, Motsch.

Loc. supra cit. p. 24.

Hab.—Japan; also Northern China and Manchuria.

✓ *Melospila consociata*.

Oblonga, nigra, nitida, thorace subnitido, grosse punctato; elytris punctato-striatis, punctis in striis confuse positus, interstitiis distincte sed leviter punctatis; utrisque fasciis tribus undulatis, suturâ abbreviatis, flavis.

Long. 4—4½ lin.

Hab.—Hakodadi (Mr. Moor).

Vertex deeply but not closely punctured, excavated and rugose just above the encarpæ, the latter raised, smooth and shining; clypeus raised, trigonate. Thorax twice as broad at the base as long; sides narrowly margined, nearly straight and somewhat diverging from the base to beyond the middle, thence obliquely converging and slightly rounded to the apex; anterior angles slightly produced, obtuse; surface subnitidous, finely granulose-punctate, deeply impressed with large round foveæ, crowded on the sides, more scattered on the disk. Elytra broadly oblong, convex, deeply punctate-striate, the punctures irregularly arranged on the striae, more regular and less deeply impressed towards the apex, interspaces finely but distinctly punctured; each elytron with three broad, irregularly-undulate, yellow fasciæ; the first below the base, extending upwards on the shoulder to the basal margin, the second just below the middle of the disk, and the third half-way between the middle and the apex, the last sends several irregular spurs upwards from its anterior margin.

M. consociata may be at once known from *M. bifasciata* by the finely granulose-punctate thorax, together with the much greater number of large round foveæ covering its surface; the shape of this segment is also entirely different, the sides being straighter and more divergent, and the reflexed border much narrower.

Genus AULACOPHORA, Chev.

Rhapidopalpa, auctor. ; Joan. L'Abeille, iii. 99.

I have adopted Chevrolat's name *Aulacophora* for the

present genus, for the same reason that I have altered my genus *Palpoxena* into *Ænidea*.

Aulacophora femoralis, Motsch.

Rhapidopalpa femoralis, Motsch. Etud. Ent. vi. 37.

Hab.—Nagasaki (Lewis), Simoda (Gaschkevitch).

Aulacophora nigripennis, Motsch.

Etud. Ent. 1857, p. 38.

Hab.—Nagasaki.

Aulacophora angulicollis, Motsch.

Ovata, postice ampliata, convexa, flavo-alba, nitida, oculis, pectore, elytrorumque maculis tribus nigris, antennis pedibusque piceis.

Var. A. Elytrorum maculâ basali obsoletâ.

— B. Elytris totis immaculatis.

Rhapidopalpa angulicollis, Motsch. Etud. Ent. ii. 50.

Mas.—Elytris foveâ magnâ communi, infra basin positâ, margine elevatâ, instructis.

Long. $2\frac{1}{3}$ lin.

Hab.—Nagasaki; also Chinese Tartary, Pekin.

Head smooth and shining, impunctate; antennæ piceous, joints pale beneath. Thorax impunctate. Elytra much broader than the thorax, dilated posteriorly, convex, distinctly punctured; the outer border, abbreviated behind the middle, and three large patches, one common, at the base, the two others placed one on each elytron, subapical and attached to the outer margin, black. Legs piceous, knees and basal half of tibiæ pale.

Aulacophora quadriplagiata.

Ovata, convexa, postice leviter dilatata, pallide fulva, nitida, pectore scutelloque nigris, antennis (basi exceptâ), femoribus dorso, tibiis intus, tarsisque piceis; elytris flavo-albidis, distincte punctatis, utrisque plagis duabus magnis, longitudinaliter positis, inter se confluentibus, nigris.

Long. $2\frac{1}{4}$ lin.

Hab.—Nagasaki, unique in Mr. Lewis's collection.

Front excavated just above the encarpæ, the latter distinctly raised, narrower, and less dilated behind than

A. angulicollis. Scutellum narrowly triangular, its apex obtuse. Elytra yellowish-white, distinctly punctured; each elytron with two large confluent patches, the first extending from the base to the middle of the disk, the second from the middle nearly to the apex, black.

Genus LUPERODES, Motsch.

Etud. Ent. vii. 102.

Luperodes quadriguttatus, Motsch.

Schrenck, Reis. in Amur-land, ii. p. 233, Tab. xi. fig. 20.

Hab.—Nagasaki; also Eastern Siberia and Dauria.

Luperodes discrepens, Baly.

Iphidea discrepens, Baly, Ent. Month. Mag. ii. 127.

Var. A. Abdomine flavo-albo.

Hab.—Nagasaki.

I find that the length of the second joint of the hinder tarsus differs greatly in different species of *Luperodes*; in consequence my genus *Iphidea*, founded on the relative length of the joints, must fall. The specimens brought over by Mr. Lewis are paler in colour, and have the abdomen yellowish-white. My type of *Iph. discrepens* is at the present time in the hands of M. Chapuis for examination, so that I am unable to compare them with it, but I think there is no doubt but that they belong to the same species.

Luperodes pallidulus.

Ovatus, convexus, pallide flavus, nitidus, antennis (basi exceptâ) fuscis, oculis nigris; thorace elytrisque distincte punctatis.

Long. 2—2½ lin.

Hab.—Nagasaki.

Antennæ slender, equal to the body in length, four lower joints pale flavous, the rest fuscous; encarpæ transverse, separated (except at the extreme apex) by the carina; eyes large and prominent, shining black. Thorax twice as broad as long, sides straight and nearly parallel, obliquely deflexed from base to apex; anterior angles thickened, very obtuse, hinder angles slightly produced,

obtuse; above transversely convex, finely but distinctly punctured; on the middle of the disk is a faint transverse excavation. Scutellum triangular. Elytra much broader than the thorax, ovate, more deeply and rather more closely punctured than the thorax.

Genus AGELASTICA, Redt.

Faun. Austr. 525.

Agelastica nigriceps, Motsch.

Etud. Ent. ix. p. 25 (*Agelasa*).

Hab.—Japan.

Agelastica cærulea.

Agel. Alni, var. *cærulea*, Motsch. Etud. Ent. ix. 26.

Ovata, convexa, cæruleo-nigra, nitida, supra cærulea aut purpurea, metallica, antennis nigris, harum articulis 2^{do} et 3^{io} longitudine æqualibus; thorace tenuiter punctato, elytris crebre punctatis.

Long. $3\frac{1}{3}$ — $3\frac{1}{2}$ lin.

Hab.—Yokohama (Mr. Moor).

Very closely allied to *A. Alni*, larger and more brightly coloured, the elytra rather more deeply punctured; second and third joints of antennæ equal in length; in *A. Alni* the third is distinctly longer than the second.

Genus LUPERUS, Geoff.

Joannis, L'Abeille, iii. 115.

Luperus Moorii.

Angustatus, elongatus, niger, nitidus, supra fusco-violaceus aut fusco-æneus; antennis corpore longioribus, nigris, articulo secundo tertioque pallide piceis, dorso nigro-tinctis; pedibus piceis, genibus posterioribus quatuor, femoribus tibiisque anticis, obscure fulvis.

Long. $1\frac{3}{4}$ —2 lin.

Hab.—Yokohama.

Head finely granulose-strigose; front impressed with an ill-defined longitudinal groove; encarpæ transverse, trigonate, contiguous; antennæ more than half as long again as the body, black, closely clothed with concolorous hairs; second and third joints piceous, stained above with black; eyes very large, prominent. Thorax one-half as broad

again as long, sides straight and very slightly diverging from the base to beyond the middle, thence rounded and converging to the apex, anterior and posterior angles each armed with an obtuse tubercle; basal margin sinuate in front of the scutellum; above shining, finely and distantly punctured, flattened on the disk, slightly excavated on either side in front, faintly excavated down the medial line. Elytra parallel, more strongly and closely punctured than the thorax. Legs piceous, the knees of the four hinder legs, together with the anterior thighs and tibiæ, obscure fulvous; the fulvous colouring in some specimens extends more or less over the four hinder tibiæ.

Genus *MONOLEPTA*, Erichs.

Arch. für Naturg. 1843, p. 265.

Joannis, Mon. Galler., L'Abeille, iii. 156.

Monolepta flaviventris, Motsch.

Calomicrus? *flaviventris*, Motsch. Etud. Ent. ix. 26.

Hab.—Japan; also Northern China.

Monolepta nigro-bilineata, Motsch.

Cnecodes nigro-bilineatus, Motsch. Etud. Ent. ix. 26.

Hab.—Japan.

Subfam. HALTICINÆ.

Genus *ÆDIONYCHIS*, Latr.

Règn. Anim. tom. v.

Ædionychis Japonicus.

Oblongo-ovatus, convexus, nigro-piceus, nitidus; thorace remote punctato, lateribus late piceis, margine reflexo piceo-fulvo; elytris remote punctatis, piceo-fulvis, suturâ vittâque mediali, postice abbreviatâ, nigris.

Var. A. Elytris totis nigro-piceis.

Long. $1\frac{3}{4}$ —2 lin.

Hab.—Nagasaki.

Head shining, vertex and front impressed on either side with large, round, variolose punctures; encarpæ trigonate, contiguous, slightly raised, smooth and shining, impunctate; antennæ two-thirds the length of the body, robust, slightly thickened towards the apex, four lower joints pale piceous,

more or less stained above with dark piceous, the rest black. Thorax nearly three times as broad as long, sides broadly margined, rounded, converging towards the apex, sinuate just behind the anterior angle, hinder angle produced into an acute tooth; upper surface transversely convex, transversely excavated in front of the base, finely and remotely punctured; dilated margin reflexed. Scutellum trigonate, nigro-piceous. Elytra oblong-ovate, convex, lateral border moderately dilated, disk finely punctured; the suture and a longitudinal stripe on the middle of each elytron, commencing at the base, and extending for four-fifths the length of the disk, pitchy black.

Genus PSEUDODERA, Baly.

Pseudodera xanthospila, Baly.

Journ. Ent. i. (1861), p. 200.

Hab.—Yohohama, Japan; also Northern China.

Genus GRAPTODERA, Chev.

Dict. d'Orb. vi. 307.

Graptodera cærulescens.

Oblongo-ovata, convexa, subtus nigro-cærulea, supra metallico-cærulea, nitida, antennis nigris; thorace convexo, sub lente minute punctato, sulco transverso fere ad marginem lateralem extenso; elytris oblongis, convexis, infra basin non depressis, tenuiter sed distincte punctatis.

Long. $1\frac{1}{2}$ —2 lin.

Hab.—Nagasaki, Tsu Sima; also Chusan.

Vertex smooth, impunctate; encarpæ oblique, transverse, subquadrate, contiguous at the apex, separated from the front by a distinct groove; carina raised, its lower half compressed and linear, the upper half hastate, space on either side the lower portion smooth, impunctate. Thorax one-third broader than long, sides nearly parallel, slightly sinuate at the base, obliquely rounded towards the apex, anterior angles very obtuse, broadly incrassate, hinder angles armed with a short tooth; upper surface smooth and shining, basal groove straight for nearly its whole length, dilated and slightly sinuate at either end, which nearly reaches the lateral border. Elytra oblong, broader than the thorax, parallel, convex, distinctly punctured, the punctures on the inner disk indistinctly arranged in longitudinal striæ.

Graptodera viridi-cyanea.

Ovata, convexa, subtus nigro-cærulea, supra viridi-cyanea, nitida, antennis nigris; thorace convexo, sub lente minute et sub remote punctato, elytris oblongis, tenuiter punctatis.

Long. $1\frac{1}{2}$ lin.

Hab.—Nagasaki.

Surface of lower half of face, on either side of the narrow, distinctly-raised carina, irregularly wrinkled; encarpæ triangular, contiguous. Thorax scarcely twice as broad as long, sides at the base nearly straight and parallel, their anterior half obliquely converging and distinctly sinuate, anterior angles slightly produced, obtuse; upper surface convex, distantly impressed with some minute punctures, only visible under a lens; basal groove distinctly bisinuate, terminating on either side at some distance from the lateral border. Elytra oblong, convex, finely punctured, interspaces (seen under a lens) minutely granulose.

Graptodera picipes.

Oblongo-ovata, postice paullo ampliata, convexa, nigra, nitida, supra purpureo-tincta, antennis basi, femoribus apice tarsisque obscure fulvis; thorace fere impunctato, basi obsolete transversim sulcato; elytris oblongis, convexis, tenuiter subremote punctatis.

Long. 1 lin.

Hab.—Nagasaki.

Front impunctate; encarpæ narrowly wedge-shaped, oblique, contiguous; antennæ with the five lower joints obscure fulvous, the rest nigro-piceous, basal joints stained above with piceous. Thorax twice as broad as long, sides nearly parallel, anterior angles thickened, obliquely truncate; middle of anterior border slightly notched; upper surface shining, nearly impunctate, a few fine punctures only being visible at the base; basal groove ill-defined, nearly obsolete. Elytra broader than the thorax, slightly broader towards the apex, the latter subacutely rounded; above convex, very finely and subremotely punctured.

Graptodera angustata.

Elongata, obscure viridi-cærulea, metallica, subtus nigra, antennis nigris, his basi, genibus tarsisque piceis; thorace transverso, lævi, ante basin vage transversim im-

presso; elytris thorace latioribus, anguste oblongo-ovatis, postice paullo ampliatis, convexis, distincte punctatis, punctis subseriatim dispositis, ad apicem minus fortiter impressis.

Long. 1 lin.

Hab.—Nagasaki.

Vertex smooth, impunctate, encarpæ well defined, contiguous, slightly but distinctly elevated; carina thickened, triangular; antennæ three-fourths the length of the body, five or six lower joints pale piceous, more or less stained above with dark piceous, the remaining joints black. Thorax transverse, sides slightly rounded, slightly diverging from the base towards the apex, anterior angles obliquely truncate, thickened; upper surface transversely convex, smooth, impunctate, impressed a short distance in front of the basal margin with a shallow, ill-defined, transverse groove, which terminates on either side some distance before reaching the lateral border. Elytra broader than the thorax, narrowly oblong-ovate, slightly increasing in width and convexity from the base towards the apex, the latter rounded, extreme apical margin truncate; surface distinctly but not closely punctured, the puncturing more faintly impressed towards the apex; interspaces smooth, impunctate.

Graptodera flavicornis.

Anguste ovata, convexa, picea, nitida, supra æneomicans, antennis pedibusque (femoribus posticis exceptis) flavis; thorace minute et remote punctato, basi leviter transversim sulcato; elytris tenuiter punctatis, punctis substriatim dispositis.

Long. 1—1 $\frac{1}{4}$ lin.

Hab.—Nagasaki.

Front smooth, impunctate; encarpæ subquadrate, oblique, contiguous; carina broad; eyes large, black; antennæ three-fourths the length of the body, third joint equal in length to the first, the second rather shorter, slightly thickened. Thorax nearly twice as broad as long, sides moderately rounded, anterior angles broadly and obliquely truncate, produced laterally into an indistinct tooth; upper surface convex, very finely and distantly punctured; basal groove shallow, terminated at either end by an oblique groove, which runs upwards and outwards towards the lateral border. Elytra broader than the

thorax, ovate, convex, finely but distinctly punctured, the punctures irregularly arranged in striae.

Graptodera fulvipennis.

Anguste oblonga, nigra, nitida, abdomine elytrisque obscure fulvis, his intra marginem costâ elevatâ instructis.

Var. A. Elytrorum costâ obsoletâ.

Long. $2\frac{1}{2}$ —3 lin.

Hab.—Nagasaki; also China.

Antennæ robust, basal joint produced at the apex beneath into a short stout tooth. Face sparingly clothed with white hairs, vertex glabrous, smooth, impunctate; encarpæ subquadrate, very distinct, separated from each other by a deep groove. Thorax about one-third broader than long, sides distinctly margined, nearly parallel, bisinuate; anterior angles laterally produced, acute, hinder angles armed with an acute tooth; above smooth and shining, finely and somewhat distantly punctured; basal groove very shallow, nearly obsolete in the middle, more deeply impressed on either side, terminated at each end by a short, deeply impressed longitudinal sulcation. Elytra broader than the thorax, oblong, convex, flattened above, finely punctured.

Genus HERMÆOPHAGA, Foud.

Mon. Alt. 299.

Hermæophaga Adamsii.

Oblongo-ovata, convexa, nigro-cærulea, nitida, pedibus antennarumque basi obscure fulvis, antennis extrorsum femoribusque posticis piceis; elytris subcerebre punctatis.

Long. $\frac{4}{5}$ lin.

Hab.—Tsu Sima (Mr. A. Adams); also Nagasaki (Mr. Lewis).

Head smooth, encarpæ transverse, ill-defined; carina broad, scarcely elevated, jaws and four lower joints of antennæ obscure fulvous, the rest nigro-piceous. Thorax nearly twice as broad as long, sides parallel, slightly rounded; anterior angles produced laterally into an acute tooth; above convex, minutely and rather distantly punctured, basal groove distinct, but not very deeply impressed. Elytra broader than the thorax, subacutely rounded at the apex, convex, irregularly punctured, the punctures vary-

ing greatly in size; the larger ones on the inner disk indistinctly arranged in longitudinal rows.

Genus *SÆBÆTHE*, Baly.

Ann. and Mag. Nat. Hist. December, 1864, p. 438.

Sæbæthe plagioderoides, Motsch.

Etud. Ent. 1860, p. 27 (*Ædionychis*?).

Var. A. Corpore nigro, pedibus piceis.

Hab.—Nagasaki, Yokohama.

Sæbæthe flavipennis.

Anguste ovata ♂, ovata ♀, modice convexa, picea aut nigro-picea; capite thoraceque nigris, antennarum basi elytrisque flavis.

Long. 2 lin.

Hab.—Nagasaki, Hiogo.

Vertex distantly punctured; encarpæ subtrigonate, contiguous, sometimes piceous; three or four lower joints of antennæ flavous or obscure fulvous. Thorax twice as broad as long, sides slightly rounded, subparallel, broadly margined, reflexed; angles not produced, obtuse, hinder angles rounded; disk distantly punctured. Elytra much broader than the thorax, somewhat depressed, distinctly and somewhat closely punctured.

Genus *LIPRUS*, Motsch.

Etud. Ent. ix. 26.

Liprus punctato-striatus, Motsch.

Loc. supra cit. p. 26.

Hab.—Japan.

Liprus hirtus.

Elongatus, piceo-fulvus, sparse fulvo-hirtus, pedibus antennisque flavis, his extrorsum nigro-piceis; meta; thorace, abdomine elytrisque nigris.

Var. A. Corpus totum fulvum.

— B. Thorax niger.

Long. 1—1½ lin.

Hab.—Nagasaki.

Head prominent, space between the eyes raised, impressed with a longitudinal groove; encarpæ not distinct;

eyes ovate, prominent, black; vertex smooth, impunctate; front above the encarpæ concavely excavated. Thorax subcylindrical, transversely grooved and constricted just in front of the basal margin; surface strongly punctured, sparingly clothed with fulvous hairs. Scutellum black. Elytra shining black, sparingly clothed with fulvous hairs; much broader than the thorax, oblong, convex, broadly depressed transversely below the basilar space, the latter slightly raised; surface strongly punctate-striate, interspaces smooth, impunctate, thickened and subcostate at the sides and apex; humeral callus elevated, the interspace extending downwards from its lower extremity, costate for the whole length of the elytron.

Genus CREPIDODERA, Chev.

Dict. d'Orbigny, vi. 307.

Crepidodera obscuritarsis, Motsch.

Etud. Ent. ix. 27.

Hab.—Japan; also Eastern Siberia.

Mr. Lewis has not met with this insect.

Crepidodera parvula.

Ovata, convexa, nigra, nitida, antennis pedibusque piceis, illis basi, tibiis tarsisque pallidis; thorace fere impunctato, sulco fere obsoleto; elytris regulariter punctato-striato, interstitiis nitidis, impunctatis.

Long. $\frac{4}{5}$ lin.

Hab.—Nagasaki.

Front impunctate, separated from the encarpæ by a deep groove; encarpæ obliquely transverse, contiguous; four lower joints of antennæ piceo-fulvous, the rest nigro-piceous. Thorax nearly twice as broad as long, sides parallel, anterior angles thickened, obliquely truncate, produced laterally into an indistinct tooth; surface convex, nearly impunctate, a few punctures only being visible at the base; basal groove indistinct, nearly obsolete. Elytra much broader than the thorax, regularly punctate-striate, punctures large, interspaces smooth and shining, impunctate.

Genus MANTURA, Steph.

Ill. Brit. Ent. iv. 322, 1831.

Balanomorpha, Chev. Dict. d'Orb. ii. 1842.

Stephens' name for the present genus has more than ten years' priority over Chevrolat's, therefore I have adopted it.

Mantura rustica, Lin.

Foud. Mon. Alt. 271.

Hab.—Japan, a single specimen; also the whole of Europe.

Genus PHYLLOTRETA, Foud.

Mon. Alt. 230.

Phyllotreta sinuata, Redt.

Faun. Austr. 532.

Hab.—Japan; also China, Eastern Siberia and the whole of Europe.

Phyllotreta funesta.

Elongata, convexa, nigra, nitida, pedibus nigro-piceis, antennis basi, genibus tarsisque piceis; thorace longitudine fere dimidio latiori, angulis posticis late rotundatis, tuberculo parvo armatis, disco granuloso, minute punctato; elytris leviter granulosis, suberebre punctatis.

Long. $1\frac{1}{2}$ —2 lin.

Hab.—Tsu Sima (Mr. A. Adams).

Head subrotundate; eyes large, moderately prominent, antennæ robust, three lower joints piceous, the rest black; encarpæ transversely contiguous; carina narrow, ridge-shaped. Thorax more than a third broader than long across the middle, sides rounded, posterior angles broadly rounded, armed with a small tubercle; above convex, finely granulo-se-strigose, finely but not closely punctured. Elytra subelongate, broader than the thorax, parallel, more coarsely and closely punctured than the latter, interspaces very finely granulo-se-strigose.

Genus APHTHONA, Foud.

Mon. Alt. 355.

Aphthona sordida.

Anguste oblongo-ovata, pallide castanea, nitida, oculis nigris; thorace sat fortiter sed subremote punctato; elytris oblongis, fortiter subcrebre punctatis.

Long. 1 lin.

Hab.—Nagasaki.

Front smooth, impunctate, separated from the encarpæ by a deep groove; encarpæ transverse, contiguous; antennæ equal to the body in length, robust, fourth and following joints pale piceous. Thorax nearly twice as broad as long, sides nearly parallel, distinctly margined, notched just behind the anterior angle, the latter broadly and obliquely truncate; upper surface moderately convex, faintly but distinctly wrinkled, coarsely but somewhat distantly punctured. Elytra broader than the thorax, oblong, shoulders obliquely rounded, sides parallel, upper surface moderately convex, deeply and somewhat closely punctured.

Aphthona strigosa.

Elongato-oblonga, subtus nigra, nitida, pedibus (femoribus posticis exceptis) fulvis; supra subopaca, sordide viridimetallica, antennis fulvis, extrorsum nigris; thorace transverso-quadrato, minute strigoso; elytris thorace latioribus, oblongo-ovatis, infra basin ad latera late sed leviter excavatis, subremote tenuiter punctatis, interstitiis granulosis.

Long. $\frac{3}{4}$ —1 lin.

Hab.—Nagasaki.

Vertex minutely strigose-granulose; encarpæ well defined, oblique, contiguous; face dark metallic green, antennæ nearly equal to the body in length, four lower joints pale-fulvous, two following piceous, the rest black. Thorax transversely convex, sides rounded, constricted at the base, armed just behind the apex with an obtuse tooth; upper surface very finely strigose. Elytra broader than the thorax, oblong-ovate, convex; broadly but slightly excavated below the humeral callus, finely but remotely punctured, whole surface finely granulose-punctate. Body beneath shining black, legs fulvous, hinder thighs black.

Aphthona pygmaea.

Oblongo-ovata, convexa, nigra, nitida, antennis extrorsum femoribusque piceis, illis basi obscure fulvis; tibiis tarsisque piceo-fulvis; thorace longitudine fere duplo latiori, angulis anticis oblique truncatis, incrassatis, posticis acutis, disco distincte et subremote punctato; elytris oblongis, distincte punctatis.

Long. $\frac{4}{5}$ lin.

Hab.—Nagasaki; a single specimen.

Head triangular, vertex smooth, impunctate; eyes large, moderately prominent; encarpæ separated from the front by a distinct groove, subovate, oblique, separated from each other by the narrow carina; four lower joints of antennæ obscure fulvous, the rest piceous. Thorax nearly twice as broad as long, sides distinctly margined, rounded; hinder angles acute, armed with a small subacute tooth, anterior thickened, obliquely truncate. Thighs nigro-piceous, their apices, together with the tibiæ and tarsi, obscure fulvous, more or less stained with piceous.

Aphthona? collaris.

Subelongata, nigra, nitida, thorace rufo-testaceo, angulis posticis obsolete, disco (oculo armato) tenuiter punctato, interspatiis tenuiter strigosis; elytris thorace latioribus, ovatis, postice leviter ampliatis, tenuiter punctatis, interspatiis minute punctatis.

Long. $1\frac{3}{4}$ lin.

Hab.—Nagasaki.

Head shining black, impunctate; encarpæ transverse, contiguous; four lower joints of antennæ nigro-piceous, the rest black. Thorax one-fourth broader than long, sides rounded, anterior angles slightly produced, their apex rounded, posterior angles entirely obsolete, broadly rounded; disk moderately convex. Elytra much broader than the thorax, ovate, moderately dilated posteriorly, finely punctured.

Aphthona? Pryeri.

Anguste ovata, læte fulva, nitida, antennis extrorsum, oculis, pectore, abdomine elytrisque nigris; thorace tenuiter punctato; elytris nitidis, subfortiter, subcrebre punctatis, interstitiis subgranulosis.

Long. $1\frac{1}{4}$ lin.

Hab.—Yokohama (Mr. Pryer); Nagasaki (Mr. Lewis.)

Vertex smooth and shining, impunctate; encarpæ trans-

verse, contiguous; antennæ equal in length to the body, second and third joints short, equal in length, three lower joints pale fulvous, fourth and fifth piceous, the rest black; eyes large, prominent. Thorax nearly twice as broad as long, sides broadly rounded at the base, gradually diverging to the middle, thence converging to the apex, hinder angles nearly obsolete, anterior angles armed with an obtuse tubercle; basal margin sinuate in the middle, broadly rounded on either side; upper surface minutely and distantly punctured, interspaces very finely strigose. Elytra much broader than the thorax, sides obliquely diverging from the shoulders for about a fourth of their length, thence gradually converging towards the apex, the latter acutely rounded; upper surface convex, rather strongly and somewhat closely punctured, interspaces finely granulose.

Genus *THYAMIS*, Stephens.

Ill. Brit. Ent. iv. 307.

Thyamis Adamsii.

Elongata, convexa, picea, nitida, antennis, pedibus quatuor anticis et tibiis tarsisque posticis pallidis; thorace lateribus fere rectis, distincte sed tenuiter punctato; elytris ovalibus, subcrebre punctatis, punctis subseriatim dispositis.

Long. $1\frac{1}{3}$ lin.

Hab.—Matsmai, Yesso (Mr. A. Adams).

Vertex smooth and shining, impressed on either side just above the eye with several large round foveæ; encarpæ transverse, slightly raised, contiguous, the sutural line between them obsolete; carina linear; antennæ equal to the body in length, filiform, pale piceous. Thorax nearly half as broad again as long, sides nearly straight and parallel, slightly sinuate behind the middle, anterior angles thickened, obliquely truncate, hinder angles acute; upper surface subremotely punctured. Scutellum smooth, impunctate. Elytra oval, broader than the thorax, convex, coarsely punctured, punctures (more especially on the inner disk) indistinctly arranged in longitudinal rows.

Thyamis Lewisii.

Elongata, convexa, fulva, nitida, pectore, abdomine, femoribus posticis capiteque (antennis basi exceptis)

piceis; thorace transverso; angulis posticis late rotundatis, disco fere impunctato, margine apicali anguste piceo; elytris ovatis, utrisque apice acute rotundatis, distincte punctatis, lineâ suturali, basi et apice abbreviatâ, nigropiceâ ornatis.

Long. 1 lin.

Hab.—Nagasaki; a single specimen.

Vertex convex, impunctate, very finely granulose-stri-gose; encarpæ obsolete; carina linear; antennæ filiform, nearly equal to the body in length, second joint slightly thickened, longer than the third; four lower joints obscure fulvous, the rest piceous. Thorax nearly twice as broad as long, sides nearly parallel in front, constricted behind the middle, hinder angles very broadly rounded; anterior angles thickened, obliquely truncate; disk subcylindrical, impunctate. Scutellum pale piceous. Elytra broader than the thorax, ovate, attenuated behind the middle, the apex of each elytron subacutely rounded; above convex, distinctly punctured, the punctures on the inner disk indistinctly arranged in longitudinal striæ. Four anterior legs and the hinder tibiæ and tarsi more or less stained with piceous; all the claws piceous.

Thyamis bimaculata.

Subelongato-ovata, sordide fulva, nitida, oculis nigris, antennis pedibusque flavis, pectore, abdomine femorumque posticorum apice piceis; thorace granuloso, distincte punctato; elytris fortiter subcrebre punctatis, utrisque maculâ subrotundatâ, vix pone medium positâ, piceâ ornatis.

Long. 1 lin.

Hab.—Nagasaki.

Front smooth, very minutely striate when seen under a strong lens; encarpæ transversely wedge-shaped, separated from the front by a deep groove, divided from each other by a short longitudinal groove; carina linear, slightly thickened at its apex; antennæ moderately robust, shorter than the body, basal and five outer joints slightly stained with piceous. Thorax transverse, sides parallel, slightly rounded, bisinuate, anterior angles broadly and obliquely truncate; extreme lateral and basal margins narrowly edged with piceous; surface transversely convex, granulose, rather coarsely punctured, the punctures somewhat crowded on the sides, much more distant on the disk. Elytra broader

than the thorax, regularly ovate, coarsely and rather closely punctured, interspaces smooth; each elytron with a large, ill-defined, round, piceous patch, placed on the middle of the disk, scarcely below the middle.

Thyamis amicula.

Elongato-ovata ♂; ovata, postice ampliata ♀, pallide piceo-fulva, nitida, antennis basi pedibusque flavis, femoribus posticis pallide piceis, oculis nigris; thorace lævi, elytris tenuiter punctatis.

Long. $\frac{3}{4}$ —1 lin.

Hab.—Nagasaki.

Vertex swollen, convex, smooth, impunctate on either side the front, just within the margin of the eyes are a few faint transverse striæ; carina linear; encarpæ not separated from the front, but divided from each other by a short piceous groove; antennæ slender, linear, exceeding the body in length, the four lower joints yellow, the rest pale fulvous, the apex of the terminal joint piceous. Thorax transversely convex, sides obtusely rounded, sinuate in the middle, the outer edge, together with the extreme basal margin, narrowly bordered with piceous; surface smooth and shining, nearly impunctate, a few very fine punctures only being visible under a deep lens. Elytra broader than the thorax, ovate, attenuated and acutely rounded at the apex in the ♂; increasing in width and convexity from the base to beyond the middle, thence sub-acutely rounded in the ♀; the sutural angles in both sexes rounded; upper surface finely and distinctly, but not very closely punctured, interspaces indistinctly granulose; suture with a narrow, pale-piceous line, often indistinct, sometimes obsolete. Legs pale yellow, hinder thighs pale piceous, a darker patch of the same colour on their inner surface.

Thyamis inconspicua.

Anguste ovata, convexa, pallide picea, nitida, oculis nigris, antennis extrorsum piceis; thorace convexo, tenuissime punctato, obsolete piceo-marginato; elytris distincte punctatis.

Long. 1 lin.

Hab.—Nagasaki.

Front smooth, impunctate, separated from the encarpæ by a shallow groove; encarpæ trigonate, con-

tiguous; carina broad; antennæ nearly equal to the body in length; second, third and fourth joints nearly equal, the second slightly thickened, seven outer joints obscure piceous. Thorax one-third broader than long, sides nearly parallel, slightly diverging from base to apex, bisinuate, anterior angles very broadly and obliquely truncate, produced laterally into a distinct tooth; above convex, very minutely punctured (the punctures only visible under a deep lens); lateral and basal margins narrowly edged with piceous. Elytra broader than the thorax, broadly ovate, convex, distinctly punctured.

Genus ARGOPISTES, Motsch.

Schrenck, Reisen, ii. 236.

Argopistes biplagiatus, Motsch., loc. supra cit. p. 236.

Hab.—Nagasaki; apparently common.

Argopistes coccinelloides.

Rotundatus, convexus, niger, nitidus, subtus piceus, antennis obscure fulvis; elytris plagis magnis duabus testaceis ornatis.

Long. 2 lin.

Hab.—Japan.

Eyes very large; upper portion of face closely punctured, impressed on either side between the eyes with a round fovea; encarpæ obsolete; vertex smooth, impunctate. Thorax nearly three times as broad as long, sides obliquely converging and slightly rounded from base to apex, anterior and posterior angles obtuse; basal margin oblique on either side, medial lobe distinctly produced, obtusely rounded; disk distinctly and somewhat closely punctured. Elytra rather more finely punctured than the thorax, each with a large testaceous patch, placed on the inner disk before the middle.

This species may be at once known from the preceding by its much larger size; it bears a very great resemblance in its form and colouring to a *Coccinella*.

Genus SPHÆRODERMA, Steph.

Ill. Brit. Ent. iv. 328.

Sphæroderma fuscicornis, Baly.

Ent. Month. Mag. i. 184.

Subhemisphærica, fulva, nitida, antennis extrorsum

oculisque nigris, thorace tenuiter punctato; elytris confuse punctatis.

Long. $1\frac{1}{4}$ — $1\frac{1}{2}$ lin.

Hab.—Nagasaki; also Tsu Sima (Adams).

Vertex smooth, impunctate; encarpæ remote, transverse-quadrate, carina broad; antennæ with the four lower joints flavous, the rest black, or pitchy black; second joint slightly thickened, subovate, third and fourth each nearly equal in length to the second, the fifth slightly longer. Thorax more than twice as broad as long; sides rounded, converging from base to apex, anterior angles slightly produced, thickened, obtuse, hinder angles obtuse; basal margin sinuate on either side the median lobe, the latter very obtuse; disk transversely convex, finely but distinctly punctured. Elytra broader than the thorax, irregularly punctured.

Sphæroderma seriata.

Subhemisphærica, fulva, nitida, oculis antennisque (his basi exceptis) nigris; thorace tenuiter, subremote punctato; elytris sat fortiter punctatis, punctis striatim-, basi prope suturam confuse-dispositis.

Long. $\frac{3}{4}$ lin.

Hab.—Nagasaki; a single specimen.

Vertex smooth, impunctate; encarpæ transverse, con-figuous; carina broad, compressed anteriorly; eyes prominent; front border of clypeus, labrum and jaws piceous; four lower joints of antennæ flavous, the rest black; second, third and fourth joints short, nearly equal, the second slightly thickened. Thorax rather more than twice as broad as long; sides narrowly margined, slightly rounded, converging from base to apex, anterior angles thickened, obliquely truncate, hinder acute; basal margin distinctly bisinuate on either side the median lobe, the latter rounded; upper surface transversely convex, finely but not closely punctured. Elytra broader than the thorax, strongly punctured, the punctures arranged in longitudinal striæ, those at the base near the suture irregularly placed.

Sphæroderma tarsata.

Ovato-rotundata, convexa, fulva, nitida, oculis nigris; thorace distincte punctato, punctis disci magis remotis, minus fortiter impressis; elytris fortiter punctatis, punctis

piceis, subseriatim dispositis, prope suturam confusis; tarsorum articulo tertio lato.

Long. 1 lin.

Hab.—Japan; a single example in Mr. Lewis's collection.

Vertex and front smooth, impunctate, separated from the eyes and encarpæ by a deep groove; encarpæ transverse, contiguous; antennæ equal to the body in length, filiform, entirely fulvous, third joint rather shorter than either the second or fourth. Thorax twice as broad as long, sides nearly parallel at the base, thence rounded and converging to the apex, anterior angles obtuse, thickened; basal margin sinuate on either side the median lobe, the latter very slightly produced, its apex truncate; upper surface distinctly punctured, the punctures finer and more scattered in the middle of the disk. Elytra coarsely and deeply punctured, the punctures stained with piceous, very irregularly placed near the suture, arranged in irregular longitudinal rows over the rest of the surface. Third joint of all the tarsi dilated and much broader than the others.

Sphæroderma Japonica.

Rotundato-ovata, convexa, cæruleo-nigra, subtus nigra, nitida, antennis longioribus, pedibusque piceis, illis basi, genibus, tibiis anticis tarsisque omnibus piceo-fulvis; thorace subfortiter punctato; elytris fortiter subseriatim punctatis.

Long. $1\frac{1}{3}$ lin.

Hab.—Nagasaki.

Vertex smooth, impressed on either side just above the eyes with one or two large round foveæ; encarpæ transverse, oblong, contiguous; eyes large, moderately prominent; antennæ equal to the body in length, second, third and fourth joints nearly equal in length, five lower joints obscure fulvous, the rest piceous. Thorax twice as broad as long, sides moderately rounded, parallel behind the middle, converging towards the apex, hinder angles acute, anterior obliquely truncate, thickened; disk transversely convex, coarsely but not very closely punctured. Elytra rather broader than the base of the thorax, coarsely punctured, interspaces shining, impunctate, the punctures on the inner disk arranged in ill-defined longitudinal rows. Third joint of tarsi only slightly broader than the first.

Sphæroderma separata.

Ovata, rotundata, convexa, subtus nigra, pedibus piceis, femoribus anticis tarsisque piceo-fulvis; supra cæruleo-nigra, antennis robustis, corpore brevioribus, nigris, basi fulvis; thorace subfortiter punctato; elytris fortiter punctatis; punctis subseriatim dispositis.

Long. 1 lin.

Hab.—Nagasaki.

Vertex and front smooth, impunctate, separated from the eyes and encarpæ by a deep groove; encarpæ oblong, oblique, separated from each other (the extreme apex excepted) by the carina; antennæ rather more than two-thirds the length of the body, robust, the third joint small, distinctly shorter than either the second or fourth, four lower joints obscure fulvous, fifth and sixth obscure piceous, the rest black. Thorax nearly three times as broad as long, sides rounded and converging from base to apex, hinder angles acute, anterior thickened, obtuse; surface rather deeply but not very closely punctured, interspaces smooth and shining, impunctate. Elytra strongly and deeply punctured, the punctures arranged in irregular longitudinal striæ; interspaces smooth, impressed here and there with a few very fine punctures. Third joint of all the tarsi only slightly broader than the first.

Sphæroderma apicalis.

Subhemisphærica, rufo-fulva, nitida, pectore elytrisque nigris, his subseriatim punctatis, apice rufo-fulvis; thorace minute subremote punctato, plagâ transversâ basali fuscâ tincto; abdomine rufo-piceo.

Long. 1 lin.

Hab.—Nagasaki.

Front smooth, impunctate; encarpæ transverse-quadrate, ill-defined; carina broad; eyes black; antennæ pale rufo-fulvous, second joint nearly as thick as the first ovate, nearly equal in length to the third and fourth united. Thorax more than twice as broad as long, transversely convex, sides moderately rounded, converging towards the apex, anterior angles thickened, very obtuse; basal margin slightly bisinuate on either side; disk finely but not closely punctured; on the basal margin, just in front of the scutellum, is a transverse piceous patch, the front margin of

which is deeply notched. Elytra broader than the thorax, somewhat strongly punctured, the punctures arranged in irregular longitudinal striæ; apex of elytra broadly edged with rufo-fulvous.

Genus ARGOPUS, Fisch.

Ent. Russ. ii. 184.

Argopus clypeatus.

Hemisphæricus, rufo-testaceus, nitidus, antennis (basi exceptâ), tibiis tarsisque nigris; clypeo rugoso, apice bifurcato, lobis concavis, basi cretâ transversâ, elevatâ, marginatis.

Var. A. Corpus piceum, antennis pedibusque ut in typo. Long. $2\frac{1}{2}$ lin.

Hab.—Nagasaki.

Very closely allied to *A. nigritarsis*, Gebl., and possibly only a local form of that species, but the character separating it, although slight, is so constant in all the specimens examined, that I have not hesitated to regard it as distinct; the chief differential character resides in the clypeus. In *A. clypeatus* the lobes of the bifurcation are deeply excavated, and separated from the face by an irregular transverse ridge; in *A. nigritarsis* this ridge is absent, and the lobes themselves are very slightly concave. All other characters are similar in both species. The present insect is more than a third larger than *A. nigritarsis*.

Argopus orientalis.

Subhemisphæricus, fulvus, nitidus, oculis antennisque (his basi exceptis) nigris; thorace tenuiter, basi magis fortiter, punctato; elytris subfortiter punctatis, punctis substriatim dispositis.

Long. $1\frac{2}{3}$ lin.

Hab.—Nagasaki.

Head smooth, impunctate, encarpæ slightly oblique, transverse, subquadrate, nearly contiguous; carina broad, smooth; antennæ slender, entirely filiform, second and third joints short, nearly equal, fourth and following joints equal, each distinctly longer than the third; lower portion of clypeus depressed, bilobed. Thorax more than twice as broad as long, sides rounded and obliquely converging from base to apex, anterior angles slightly but distinctly produced, obtuse; basal margin slightly bisinuate on either

side the median lobe, the latter truncate; upper surface transversely convex, finely but distinctly punctured, the punctures near the basal margin coarser and more strongly impressed. Elytra broader than the thorax, strongly punctured, the punctures arranged in irregular longitudinal striæ, their interspaces shining, impunctate.

Genus APTEROPODA, Redt.

Faun. Austr. 542.

Apteropoda nigro-picea.

Rotundato-ovata, postice attenuata, valde convexa, nigro-picea, nitida, antennis pedibusque piceo-fulvis, femoribus posticis piceis; thorace sparse et tenuiter punctato, utrinque basi lineâ brevi impresso; elytris regulariter punctato-striatis, interstitiis lævibus, impunctatis.

Long. 1—1¼ lin.

Hab.—Nagasaki.

Front smooth, impunctate, separated from the face by a transverse slightly curved groove, which extends across between the upper angles of the eyes; lower portion of face rufo-piceous. Thorax transverse, sides straight and parallel, produced before the middle into a short acute tooth, thence obliquely converging to the apex; surface transversely convex, distantly and finely punctured, impressed at the base on either side with a short longitudinal groove. Elytra broadly ovate, attenuated towards the apex, convex, regularly punctate-striate, the interspaces smooth, impunctate.

Genus PLECTROSCELIS, Redt.

Faun. Austr. 539.

Plectroscelis granulosa.

Ovata, convexa, nigra, nitida, femoribus anticis quatuor piceis, tibiis, tarsis antennarumque basi fulvis; thorace subfortiter punctato, interstitiis granulosis; elytris fortiter punctato-striatis, interspatiis exterioribus subcostatis.

Long. ⅔ lin.

Hab.—Nagasaki.

Front separated from the encarpæ on either side by an oblique groove; encarpæ divided from each other by the linear carina, which runs upwards to join the front; antennæ three-fourths the length of the body, three lower

joints fulvous, second two-thirds the length of the first, third and two following joints equal, each rather longer than the second. Thorax nearly twice as broad as long, sides moderately rounded, slightly converging towards the apex, anterior angles very obtuse; upper surface distinctly punctured, interspaces granulose. Elytra broader than the thorax, slightly attenuated towards the apex, convex, deeply and regularly punctate-striate; interspaces smooth and shining, impunctate, those on the outer disk subcostate.

Plectroscelis concinnicollis.

Ovata, convexa, subtus nigra, pedibus piceo-fulvis, femoribus piceis; supra cuprea, antennis obscure fulvis, extrorsum nigris; thorace crebre foveolato, interstitiis laevibus; elytris foveolato-striatis, interspatiis nitidis, impunctatis, disco exteriori et ad apicem convexiusculis.

Long. $\frac{4}{5}$ lin.

Hab.—Nagasaki; a single specimen.

Head round, closely foveolate-punctate; encarpæ and carina obsolete; antennæ more than half the length of the body, very slightly thickened towards the apex, six lower joints obscure fulvous, the rest black. Thorax two-thirds broader than long, sides parallel, rounded and converging before the middle, hinder angles acute, anterior obtuse; disk closely covered with large round punctures, interspaces shining, impunctate. Elytra broader than the thorax, narrowed towards the apex, deeply foveolate-striate; interspaces smooth, impunctate, convex on the outer disk and towards the apex; a small space at the base, near the suture, irregularly punctate.

Plectroscelis cylindrica.

Subcylindrica, subtus obscure viridi-metallica, pedibus piceo-fulvis, femoribus anticis quatuor basi et apice, posticis dorso, tibiis apice tarsisque piceis; supra ænea, antennis nigris, basi fulvo-piceis; thorace sat crebre foveolato-punctato; elytris fortiter punctato-striatis, punctis basi prope suturam confusis; interspatiis disci exterioris et ad apicem costatis.

Long. $1\frac{1}{2}$ lin.

Hab.—Nagasaki.

Head round, lower portion of face clothed with long white hairs; vertex and front closely covered with round

punctures, a longitudinal line down the front impunctate; encarpæ and carina obsolete; antennæ more than half the length of the body, slightly thickened towards the apex, four lower joints fulvo-piceous, stained above with piceous. Thorax about a third broader than long, sides obliquely diverging from the base to the middle, thence rounded and converging to the apex, hinder and anterior angles acute; disk convex, deeply foveolate-punctate. Elytra rather broader than the thorax, parallel, convex, deeply foveolate-striate; interspaces on the outer disk and towards the apex costate.

Genus *PSYLLIODES*, Latr.

Règn. Anim. v. 139.

Psylliodes angusticollis.

Elongato-ovata, nigro-ænea, nitida, antennis pedibusque fulvis, illis extrorsum tarsisque infuscatis, femoribus posticis piceis; thorace punctato, lateribus subparallellis, leviter rotundatis; elytris distincte punctato-striatis, interspatiis planis, sub lente minute sed sparse punctatis.

Long. 1 lin.

Hab.—Nagasaki.

Head narrowly triangular, front slightly swollen, smooth, impunctate. Thorax scarcely one-third broader than long, sides nearly parallel, slightly rounded, converging towards the apex, anterior angles thickened, broadly and obliquely truncate; surface covered with rather large but shallow punctures, the interstices finely granulose-punctate. Elytra broader at the base than the thorax, narrowly ovate, convex, distinctly but not very deeply punctate-striate; interspaces smooth, very finely but sparingly punctured (the punctures only visible under a deep lens).

Psylliodes punctifrons.

Elongato-ovata, convexa, obscure viridi-ænea, nitida, antennis piceis, basi fulvis, pedibus piceo-fulvis, femoribus quatuor anticis piceis, posticis piceo-æneis; thorace crebre punctato, lateribus rectis; elytris sat fortiter punctato-striatis, interspatiis distincte punctatis.

Long. $1\frac{1}{2}$ lin.

Hab.—Nagasaki.

Vertex and front distinctly punctured; interspaces minutely granulose, encarpæ obsolete; three lower joints of

antennæ fulvous, the above surface of the third, together with the following joints, piceous. Thorax nearly twice as broad as long, sides straight, slightly converging from base to apex, anterior angles thickened, obliquely truncate; surface finely granulose-strigose, somewhat closely punctured, the puncturing coarse on the sides, rather finer on the middle of the disk. Elytra broader than the thorax, ovate, convex, regularly punctate-striate, interspaces shining, finely but not closely punctured. Legs obscure piceo-fulvous, four anterior thighs piceous, hinder pair fusco-aneous.

Psylliodes difficilis.

Elongato-ovata, convexa, nitida, subtus nigra, pedibus piceis, femoribus posticis cyaneo-micantibus; supra cyanea, antennis nigris, basi fulvis; thorace transverso, subconico, subremote punctato; elytris regulariter punctato-striatis, interspatiis tenuiter, remote punctatis, disco exteriori et ad apicem convexis.

Long. $1\frac{1}{2}$ lin.

Hab.—Nagasaki; a single specimen.

Vertex convex, finely and subremotely punctured; encarpæ obsolete, carina broad; antennæ moderately robust, two-thirds the length of the body, second joint curved, equal in length to the first, third scarcely shorter than the second, three lower joints obscure fulvous, the rest black. Thorax nearly twice as broad as long at the base, sides straight, obliquely converging from base to apex; anterior angles broadly and obliquely truncate, produced laterally into a small acute tooth; hinder angles acute; basal margin oblique and bisinuate on either side, basal lobe rounded; above subconic, distinctly but not closely punctured. Elytra broader than the thorax, narrowly oblong, strongly punctate-striate, interspaces finely but remotely punctured, nearly plane on the anterior half of the inner disk, convex towards the apex; those on the outer disk convex for their whole length.

Genus NONARTHRA, Baly.

Journ. Ent. i. (1862), p. 455.

Nonarthra cyaneum.

Subrotundatum, valde convexum, nigrum, nitidum,

genibus tarsisque piceis; supra cyaneum, antennis nigris, articulis tribus basalibus fulvis, dorso piceo-tinctis.

Long. $1\frac{3}{4}$ —2 lin.

Hab.—Nagasaki.

Head smooth and shining, nearly impunctate, front just above the encarpæ transversely excavated; encarpæ contiguous. Thorax nearly three times as broad as long, sides obliquely converging from base to apex; surface minutely and remotely punctured. Scutellum trigonate. Elytra broadly rotundate-ovate, distinctly punctured.

Nonarthra fulvum.

Late ovatum, convexum, obscure fulvum, nitidum, thorace subremote et minute punctato; elytris tenuiter sed distincte punctatis.

Long. $1\frac{1}{2}$ lin.

Hab.—Japan; a single specimen in my own collection, collected by Mr. Moor.

Clypeus triangular, smooth, impunctate; carina obsolete; encarpæ subtrigonate, contiguous, separated from the front by a deep transverse groove; vertex smooth, impressed with very fine remote punctures; eyes pale. Thorax three times as broad as long, sides obliquely rounded and converging from base to apex; hinder angles broadly rounded, anterior obtuse; disk somewhat distantly and very minutely punctured, the punctures only visible under a lens; sides broadly margined, margin reflexed, separated from the disk by coarse irregular punctures. Scutellum triangular. Elytra much broader than the thorax, lateral border narrowly reflexed, shoulders broadly rounded; upper surface moderately convex, slightly flattened in the middle of the back, finely but distinctly punctured.

Fam. CASSIDIDÆ.

Genus ASPIDOMORPHA, Hope.

Boh. Mon. Cass. ii. 242.

✓ *Aspidomorpha difformis*, Motsch.

Boh. Mon. Cass. Suppl. 277.

Deloyala difformis, Motsch. Etud. Ent. 1860, p. 27.

Hab.—Japan; also Manchuria and Eastern Siberia.

Genus CASSIDA, Lin.

Syst. Nat. i., ii. 374; Boh. Mon. Cass. ii. 329.

Cassida Japana.

Rotundata, subdepressa, sordide fulva aut fusca, subnitida, antennis extrorsum piceis; subtus nigra, pedibus obscure fulvis; thorace nitido, distincte punctato; elytris fortiter, sat profunde punctato-striatis, interspatiis costatis, costis hic illic ramulo transverso connexis; disco modice convexus, utrisque basi ad suturam excavatis; sparse nigromaculatis; margine laterali paullo deflexo, nitido.

Long. $2\frac{1}{4}$ — $2\frac{1}{2}$ lin.

Hab.—Nagasaki.

Antennæ shorter than the thorax, slightly thickened towards the apex, six outer joints piceous. Thorax transverse, apex obtuse, sides rounded at the base, thence obliquely rounded and converging, towards the apex transversely converging in front; upper surface deeply excavated on either side, impressed with rather large but shallow punctures. Scutellum coarsely punctured, its apex rounded. Elytra broader than the thorax, shoulders rectangular, their apices rounded; sides slightly rounded and diverging before the middle, thence regularly rounded to the apex, the latter very obtusely rounded; disk convex, excavated on either side at the base near the scutellum, deeply punctate-striate.

Cassida erudita.

Ovata, subdepressa, sordide viridana, subnitida, antennis extrorsum corporeque inferiori nigris, tibiis tarsisque sordide flavis; thorace fortiter punctato, postice rugoso, angulis posticis subacutis; elytris fortiter, seriatim punctatis, basi signaturâ piceâ communi literam V simulanti instructis.

Long. 4 lin.

Hab.—Yokohama; collected by Mr. Pryer.

Antennæ shorter than the thorax, slightly thickened towards the apex, five outer joints black, clothed with adpressed hairs. Thorax nearly as broad as the elytra, its apex obtusely angled, the hinder angles distinct, subacute; sides slightly rounded and converging behind the middle, transversely converging at the apex; upper surface broadly concave on either side, coarsely punctured, rugose towards the base. Scutellum triangular, its apex acute. Elytra

scarcely broader than the thorax, shoulders rectangular, anterior angles rounded; sides subparallel at the base, rounded and obliquely converging behind the middle, the apex broadly rounded; disk coarsely and deeply punctured, the punctures arranged in longitudinal rows; interspaces thickened, rugulose, each elytron near the suture with an ill-defined longitudinal costa; outer margin coarsely punctured; at the base of each elytron is a curved piceous vitta, which, commencing just within the humeral callus, runs along the outer edge of the scutellum and extends for a short distance down the suture, forming with its fellow of the opposite elytron a common V-shaped marking.

Cassida vespertina, Boh.

Mon. Cass. Suppl. 357.

Hab.—Hiogo, Japan; also Northern China.

The single specimen sent to me by Mr. Lewis differs from the type in being slightly larger, and in having the thorax almost entirely castaneous; in all other respects it agrees with the specimens from Northern China.

Cassida nebulosa, Lin.

Boh. Mon. Cass. ii. 451.

Hab.—Nagasaki, Kawachi, Japan; also Northern Asia, the whole of Europe, and Madeira.

Cassida consociata.

Late ovata, modice convexa, rufo-fusca, antennis extrorsum, metathorace, abdomine pedibusque nigris; thorace elytris æquilato, lateribus basi obtuse angulatis, disco rugoso-punctato; elytris punctato-striatis, hic illic leviter costatis; margine laterali complanato, transversim ruguloso.

Long. $2\frac{2}{3}$ lin.

Hab.—Nagasaki, Japan; also Oo Oo Bay, Coast of Tartary (Mr. A. Adams).

Very close to *C. ferruginea* and agreeing in most of its characters; it may be at once known by the broad thorax, which is equal in width to the elytra; the sides are distinctly angled at the base, but in *C. ferruginea* they are rounded. The legs in the present species are black, the

whole body is also less convex, the highest part of the convexity being behind the middle; in the older insect the convexity is a short distance below the base of the elytra; the costæ on the surface of the latter are less raised.

Genus COPTOCYCLA, Boh.

Mon. Cass. iii. 90.

Coptocycla Thais, Boh.

Mon. Cassid. Suppl. p. 463.

Var. A. Maculâ elytri marginis obsoletâ.

Hab.—Japan; also Northern China.

The specimen in my collection from which Suffrian drew up his description of this species was unfortunately pale and immature; the sanguineous markings described by that author are black or piceous in the fully-developed insect.

Coptocycla Lewisii.

Subrotundata, convexa, fulva, subnitida, antennis extrorsum infuscatis; subtus picea, nitida, pedibus fulvis, elytris pone basin leviter gibbosis, utrisque basi ad suturam excavatis, profunde punctato-striatis, hic illic rete elevato instructis; disco fulvo-piceo, piceo-marginato; margine laterali lævi, ramulis duabus piceis, uno infra basin, altero pone medium positus, ornato.

Long. 3 lin.

Hab.—Hiogo.

Thorax twice as broad as long, apex obtusely angled, sides rounded at the base, thence obliquely and transversely converging to the apex; disk smooth, impunctate. Elytra much broader than the thorax, shoulders moderately prominent, their apices rounded; disk distinctly gibbous below the base, the base itself excavated on either side the suture, gibbosity crowned by a transverse ridge; surface deeply punctate-striate, the striæ sulcate, interspaces on the inner disk towards the apex thickened; here and there are some irregular, loosely-reticulated, raised, fulvous rugæ, most visible at the base and towards the apex of the disk; dilated margin slightly deflexed, smooth, impunctate.

Fam. HISPIDÆ.

Genus HISPA, Lin.

Syst. Nat. i. 603.

Hispa mœrens.

Elongata, modice convexa, nigra, nitida; antennis robustis, subfiliformibus, articulo basali spinâ validâ armato; thorace longitudine vix latiori, apice subcylindrico, utrinque spinâ validâ bifurcatâ armato, margine laterali spinis duabus validis, primâ bifurcatâ, instructo; disco rude rugoso, ante basin transversim excavato; elytris profunde punctato-striatis, tuberculis nonnullis instructis, margine laterali spinis robustis brevibus armato.

Long. 2 lin.

Hab.—Nagasaki; also China (Shanghai).

Vertex smooth, separated from the face by a transverse groove; face rugose; antennæ robust, subfiliform, not half the length of the body, basal joint thickened, compressed above, armed with a long stout spine. Thorax scarcely broader than long, apex subcylindrical, armed on either side with a suberect, stout, bifid spine; side margin armed with two stout spines, the first bifid; disk flattened, with a broad transverse excavation at the base, faintly grooved down the middle, slightly excavated on either side, coarsely rugose, sparingly clothed with white hairs. Elytra broader than the thorax, parallel, deeply punctate-striate; on the disk of each elytron are a few obtuse tubercles arranged in three longitudinal rows; humeral callus raised, its upper edge furnished with a row of obtuse tubercles; lateral border armed with a single row of short obtuse spines. Legs robust, four hinder thighs armed beneath with short obtuse teeth, those on the hinder pair nearly obsolete. Claws with the unguiculi soldered into a single piece.

Hispa Japonica.

Anguste oblonga, nigro-picea, nitida, antennis pedibusque fulvis; thorace transverso, lateri utroque spinis tribus fulvis, basi convexis armato; apice subcylindrico, utrinque spinâ bifidâ fulvâ armato; disco rugoso-punctato, pilis adpressis sparse vestito, piceo-fulvo, plagis duabus magnis, apice confluentibus, nigro-piceis ornato; elytris oblongis, nigro-maculatis, profunde foveolato-punctatis, punctis stri-

atim dispositis, tuberculis magnis nigris acutis nonnullis instructis; humeris valde cristatis, margine serratis; margine laterali paullo dilatato, spinis acutis numerosis armato, margine apicali serrato.

Long. $1\frac{1}{2}$ — $1\frac{3}{4}$ lin.

Hab.—Hiogo, Kawachi; also China.

Antennæ filiform, more than two-thirds the length of the body, obscure fulvous; carina compressed, strongly raised, eyes large, prominent, front and face rugose, black, a narrow line running along the front, pale piceous. Thorax nearly one-half broader than long, sides armed with three strong fulvous spines, connected at the base; spines acute, sometimes armed near the apex with a short tooth; disk flattened, transversely sulcate at the base, rugose-punctate, clothed with silvery adpressed hairs; apex cylindrical, armed on either side with an erect bifid fulvous spine, the apices often toothed. Scutellum piceous, triangular, its apex truncate. Elytra piceo-fulvous, maculated with nigro-piceous, oblong, broader than the thorax, strongly and deeply foveolate-striate, the alternate interspaces subcostate; disk of each elytron furnished with eleven or twelve large, compressed, acute, black tuberosities, those near the apex larger and more strongly elevated than the others; humeral callus strongly elevated into a flattened ridge, its upper edge serrate; lateral border narrowly margined, the outer edge armed with a single row of acute spines, apical margin serrate.

This species is very variable in colouring.

Hispa subquadrata.

Oblongo-quadrata, nigro-picea, hic illic piceo-maculata, pedibus antennisque fulvis, his extrorsum fuscis; thorace transverso, rugoso, apice spinis bifidis duabus, lateri utroque spinis tribus armato; elytris subquadratis, apice truncatis, margine dilatato, humeris margineque basali spinis numerosis brevibus acutis armatis; dorso subdepressis, profunde punctatis, rugosis, tuberculis acutis magnis nonnullis instructis.

Long. $2\frac{1}{2}$ lin.

Hab.—Nagasaki, Hiogo.

Head rugose; antennæ filiform, six lower joints fulvous, the rest fuscous. Thorax transverse, disk flattened, coarsely rugose-punctate, and with five irregular,

raised, granulose patches placed in a transverse row across its surface; apex subcylindrical, armed on either side with a stout, compressed, bifid spine; lateral margin moderately dilated, armed with three stout flattened spines. Elytra much broader than the thorax, flattened above, closely covered with large, deeply-impressed foveæ, arranged in longitudinal rows, their interspaces rugose-strigose; humeral callus elevated, its upper edge, together with the basal margin, each furnished with a row of short acute teeth; disk of each elytron with about ten large, longitudinally-compressed, acute tuberosities, which strongly resemble those on the elytra of many species of *Chlamys*; lateral border moderately dilated, more distinctly so at the base, its surface rugose, its outer edge coarsely serrate; apical border dilated, truncate, its outer edge also serrate.

NOTE.—Since the publication of the former part of this Paper (Trans. Ent. Soc. 1873, p. 96), I find that Haldeman has described a North American *Cryptocephalus* under the name of *amatus*. I therefore wish to substitute *consalanus* as a specific name for my species.

VII. *Supplement to the Longicorn Coleoptera of Chontales, Nicaragua.* By H. W. BATES.

[Read 1st December, 1873.]

MR. THOMAS BELT having finally left Nicaragua, after a residence of four years and a half, and brought with him the remainder of his collection, including many species which he had not previously sent home, I have now to communicate the descriptions of a number of Longicorn Coleoptera, not enumerated in the former paper published in the Transactions for 1872, p. 163. The additional species amount to 37, which bring up the total number to 309.

Fam. PRIONIDÆ.

Macrodonia Dejeanii, Gory, Ann. Soc. Ent. Fr. 1839, p. 127, t. 9.

This species has hitherto only been known as inhabiting "Columbia." Mr. Belt has brought from Chontales several examples.

Fam. CERAMBYCIDÆ.

Section A. Eyes coarsely faceted.

Hypermallus dædaleus, n. sp. Subcylindricus, castaneofuscus, pilis incumbentibus ochraceo-griseis vestitus, strigisque elytrorum tomentosus ejusdem coloris fasciatim digestis; capite thoraceque angustioribus et obscurioribus grosse reticulato-punctatis, hoc medio plagâ angustâ levissimâ. Long. 6 lin. ♀.

One example.

Similar in form and in the thimble-like sculpture of the thorax to *Hyperm. elegans*, Chev., but elytra unarmed at the apex. Resembles also the *Trichophori* rather than the typical *Hypermalli*; but the antennæ and tibiæ destitute of grooves. Head and thorax blackish, with scant, laid hairs; the latter nearly cylindrical, with a few spots

of ochreous tomentum on each side of the disk. Scutellum ochreous-tomentose. Elytra simply truncated at the apex; coarsely punctured near the base, finely so towards the apex, each puncture with a decumbent hair, and each elytron marked with two very oblique and irregular streaks of ashy-ochreous tomentum. Antennæ and legs rufo-fuscous, the former with 3—7 joints unispinose, 4th joint abbreviated.

Eburodacrys sticticollis, n. sp. *E. sexmaculato* paulo robustior, pilis erectis elongatis sparsim vestita; fulvo-ochracea, nitida, elytris utrimque lineolâ basali, alteris duabus postmedianis (exteriori postice prolongatâ) eburneis, omnibus nigro-marginatis, strigâque nigrâ colligatis; thorace suprâ maculis quinque nigris; abdomine nigro-piceo; femoribus apice spinisque nigris. Long. 10 lin. ♀.

One example.

Nearest resembling *E. longipilis*, but much more robust. The thorax is coarsely rugose transversely, with a central and two side spots on the disk black, all situated on tubercular elevations; the strong lateral spines are also black, and there is a black streak extending along the flanks from them, besides another spot near each coxa, where the prosternum has a remarkable transverse cavity. The antennæ are tawny-reddish, with moderate ciliation beneath. Scutellum black. Elytra closely and finely punctured, smooth towards the apex; truncated, with the sutural angle pointed and the exterior angle produced into a long spine, spines tawny-ochreous; the basal spot is single, narrow and elongated, connected with the median spots by a black streak; of the two median spots the outer is much prolonged at the tip, both are narrow and pointed at their extremities.

Nephalius nigriventris, n. sp. Gracilis, testaceo-rufus, nitidus, pilis erectis elongatis sparsim vestitus; antennis (scapo rufo excepto), metathoracis episternis, abdomine, tibiis et tarsis nigris; femoribus gradatim clavatis, apice breviter bidentatis; thorace oblongo, postice constricto, suprâ inæquali, lævi, lateribus vix tumido, sparsim punctato; elytris sinuato-truncatis, extus longe spinosis, suprâ dense breviter erecte pubescentibus. Long. 6 lin. ♂, ♀.

One example (♂) in Mr. Belt's coll. Another (♀) from Mexico, in my own.

Shining ochreous-red; the abdomen, sides of metastern-

num, antennæ (except the scape), tibiæ and tarsi black. The antennæ (except the shining scape) are densely pubescent and the grooves and ridges are faint or scarcely visible; the third to seventh joints are unispinose at the apex in both sexes. The thorax is rather tumid on the sides and much constricted towards the base; the disk is unequal, but scarcely tuberculated, smooth and shining, having only a few scattered punctures; the flanks are more densely punctured. The elytra are moderately punctured and clothed with short, tawny, erect pile; besides a number of very long erect hairs.

I have no doubt the genus *Stizocera*, Serv., is equivalent to *Nephalius* as defined by Lacordaire; but until Serville's type (*St. armata*) is re-discovered, it will be unwise to restore his name.

Alcyopsis chalcea, n. sp. Nigra, capite thoraceque nitidis, elytris æneis splendidis, pedibus flavo-testaceis, geniculis nigris. Long. 10 lin.

One example.

This fine Longicorn differs from the only other known species, *A. cyanoptera* (Brazil), by its black head and thorax, and glossy, dark, brassy-green elytra. The scape of the antennæ is rather strongly clavate, brassy-black and shining. The eyes differ from those of *A. cyanoptera* in the upper lobe being very short and rather broad, without any approach to separation from the lower lobe. The antenniferous tubercles are elevated and pointed. The thorax is elongated, narrowed in front, smooth and glossy, with five very prominent wart-like tubercles on the disk. The elytra are very briefly truncated, with obtuse sutural angle and a long acute spine to the exterior angle; the surface is very minutely and sparsely punctulated, and marked besides with three rows of much larger punctures, each bearing a stiff bristle; on each side near the apex is the commencement of a fourth row. The legs are long and robust; the thighs thickly clavate.

Heterachthes obtusus, n. sp. Robustus, dense erecte pubescens, castaneo-fuscus, subnitidus, elytris (apice conjunctim rotundatis) maculis utrimque tribus magnis fulvo-testaceis, 2ndâ fasciam obliquam formanti; thorace cylindrico, sparsim grosse punctato, fulvo incumbenti-pubescenti, lineâ brevi dorsali lævi. Long. $7\frac{1}{4}$ lin. ♀.

One example.

Of peculiar facies owing to its rather broad and slightly convex elytra, obtusely rounded at the apex; it is however a true *Heterachthes*, according to Lacordaire's definition and allied to *H. signaticollis* (Thoms.) The head (with the eyes) is scarcely broader than the thorax, coarsely confluent-punctate behind, with moderately raised antenniferous tubercles. Antennæ (♀) shorter than the body, fulvous, sparingly setose; not thickened or carinated, fourth joint much shorter than the third, a little shorter than the fifth. Thorax cylindrical, with an obtuse tubercle on each side of the smooth, raised median space. Elytra much wider than the thorax, rather convex, and a little rotundate-dilated beyond the middle, apex obtusely rounded; densely setose; above punctulated; the ground colour is chestnut-brown, varied with large pale-tawny spots, the first lateral at one-third the length and emitting a streak to the humeral callus, the second beyond the middle forming a rather oblique subdentate fascia, the third rounded at the apex. Body beneath and legs reddish-chestnut. Legs rather short; femora clavate; tibiæ without grooves. Prosternum extremely narrow between the coxæ.

Section B. Eyes finely faceted.

Odontocera clara, Bates, *Annals Nat. Hist.* vol. xi. 1873, p. 38.

Many examples.

Callichroma opiparum, n. sp. Magnum, infra splendide igneo- et viridi-aureum; supra, elytris subtiliter velutinis purpureo-cupreis, viridi paulo relucentibus; thorace obscure cupreo, omnino longitudinaliter fortiter flexuose ruguloso; pedibus nigris; femoribus quatuor anticis medio, posticis dimidio basali, sanguineis, tibiis posticis ut in *C. suturali* compresso-dilatatis; antennis nigris. Long. 1 unc. 7 lin. ♀.

One example; in my own collection, obtained from a box of Nicaraguan insects on sale in London.

Allied to *C. velutinum* and *holochlorum*, but differing from all tropical American *Callichromæ* known to me in the peculiar sculpture of the occiput and thorax, which are closely covered with short furrows, running in a longitudinal direction, variously confluent and leaving very fine ridges between them. The scutellum is similarly sculptured, with a central impressed line. The elytra are

clothed with a silky pile of extreme fineness, reflecting dark coppery-purple or green hues, according to position. The body beneath is glabrous, and of brilliant metallic hues, golden-green and igneous-coppery.

CLEOZONA, nov. gen.

Subfam. *Tillomorphinæ* pertinet, generis *Euderces* et *Tillomorpha* affinis. Corpus elongatum, opacum, pube incumbenti vestitum. Caput retractum, antice breve, latum; inter antennas vix concavum; tuberibus antenniferis vix elevatis sed acutis. Oculi divisi; lobis parvis, rotundatis. Palpi brevissimi, apice truncati. Antennæ corpore paulo longiores (♂ ♀?), filiformes; articulis 3—5 sulcatis, apice unispinosis, 3io quàm 4to duplo longiori, 5to—11mo subæqualibus. Thorax elongato cylindrico-ovato, inermi, disco antico convexo, ad basin angustato. Elytra thorace haud latiora, capite cum thorace paulo longiora, ad basin vix convexa deinde usque ad apicem subplana declivia, apice truncato. Pedes elongati; femora gradatim fortiter clavata; tibiæ omnes utrimque carinatæ, posticæ undique ciliatæ; tarsi breves; coxæ anticæ haud exsertæ; prosternum latiusculum; acetabula intermedia clausa.

Cleozona pulchra, n. sp. Nigra, pube cinereâ dense vestita; elytris utrimque plagâ medianâ, magnâ, intus curvatâ, subnudâ, nigrâ, fasciâque in medio fulvâ transversim flavo-bistriatâ. Long. 7 lin.

Many examples.

In general form this elegant insect resembles *Euderces* and other genera of the sub-family *Tillomorphinæ*, from all of which it is distinguished by its slender, grooved and spined antennæ, and carinated tibiæ. The ground colour is black, but is veiled by a dense silvery-gray pubescence; and on each elytron there is a large naked black patch, the inner margin of which is curved and does not reach the suture; on this patch the thick punctuation of the integument is visible, and the middle is crossed by an ornamental belt of an orange or tawny-brownish colour, near the anterior and posterior margins of which runs a fine transverse yellow line. The basal margin is also black, so that the silvery-gray pile is limited in reality to two large triangular patches, one basal and the other

apical. Across the top of the convex part of the thorax is a patch of erect black hairs. The basal part of the middle and hind thighs is blood-red.

Rhopalophora cupricollis, Guérin, Icon. Règne An.
p. 235.

This Mexican species has been found by Mr. Belt.

Rhopalophora Venezuelensis, Chevrolat, Thomson's
Arcana Naturæ, p. 60.

One example, smaller and more slender than examples from Caraccas, with which I have compared it.

Entomosterna trucidata, Chevr. Ann. Soc. Ent. Fr. 1862,
p. 755.

One example, apparently ♀. The species was previously known only from Yucatan.

Fam. LAMIADÆ.

Hammoderus nitidus, n. sp. Suprà, ut in *H. Lacordairei* nitidus, æneo-fuscus; elytris maculis minutis ochraceo-tomentosis irroratis, alteris magnis utrimque quatuor, scilicet primâ haud procul a basi, obliquâ versus suturam, secundâ et tertiâ lateralibus ante et post medium, quartâque minori prope apicem; elytris apice prope suturam unispinosis; capite et thorace sparsim fulvo-pubescentibus, hoc disco flexuose rugoso; antennis, pedibus et corpore subtus dense fulvo-fusco vestitis, pectore abdomineque maculis parvis seriatis ochraceis. Long. 1 unc. 1 lin.—1 unc. 3 lin. ♀.

Two examples, ♀.

Differs from most other species of the genus by the naked shining integument (especially of the elytra), where not covered with tomentose spots. It is further distinguished from *H. elatus* and others by the absence of pale tomentose spots at the base of each elytron. The elytra are thickly irrorated throughout with tawny-ochraceous specks, and the large patches are four in number; one (liable to abrasion) being behind the scutellum, oblique and not reaching the suture, another small one close to the apex, and the other two are large, quadrate, lateral patches. The elytra are dense, granulate-punctate at the base, the punctuation gradually becoming finer and disappearing

before the apex; the apical spines are rather long as in *H. elatus*, a short distance from the suture.*

Tautoclines scissicauda, n. sp. Cylindrica, robusta, obscure fusca, ochraceo-fusco tomentosa; capite thoraceque (antice haud attenuato) grosse punctatis; elytris striato-punctatis, apice plagâ densius tomentosâ et albo-guttulatâ, apice ipso obtuse rotundato, juxta suturam conjunctum fortiter emarginato; antennis apice incrassatis; articulo tertio valde elongato. Long. 6 lin.

One example.

This species partakes of the distinctive characters (as given by Thomson and Lacordaire) of all the three genera into which the genus *Agennopsis* (= *Adetus*, Leconte) has been divided; having the prosternum of *Agennopsis*, the plane mesosternum of *Tautoclines* and the apically thickened antennæ of *Pterichthya*. It has upon the whole more affinity with *Tautoclines*, excepting that the body is of nearly equal width throughout, without tapering in front and behind. The colour of the fine laid pubescence is a lightish brown, with a round apical patch of lighter colour and denser texture on the elytra.

Desmiphora fasciculata, Fab. Ent. Syst. i. 284 = *D. gigantea*, Thomson, Class. des Céramb. p. 75.

Does not differ from Amazons specimens. The species has therefore a wide distribution, but it appears rare everywhere. Mr. Belt states that its hairy clothing gives it a deceptive resemblance to a hairy caterpillar, and that it is found on foliage, like caterpillars, and unlike the other *Desmiphoræ*, which are seen on dead branches.

* A very closely allied species, with shining elytra, was brought by Mr. Buckley from the Macas district in Ecuador, differing from *H. nitidus* in having an ochreous patch in the middle of the base of each elytron, and the tomentose specks being larger, less numerous and round:—

Hammoderus stieticus, n. sp. Fuscus, ochraceo-fusco subtiliter pubescens; elytris castaneo-fuscis subnitidis, interrupte subtiliter pubescentibus, guttis paucis rotundatis ochraceo-tomentosis conspersis, maculisque majoribus utrimque quatuor, primâ basali, secundâ ante medium laterali, tertiâ et quartâ discoïdalibus prope apicem, apice dentatis haud spinosis; thorace medio nudo, nigro, rugoso; basi utrimque lineolâ ochraceâ; corpore subtus maculis lateralibus ochraceis vix conspicuis; antennis ♂ gracilibus, corpore fere triplo longioribus. Long. 12 lin. ♂.

Macas; Ecuador (Buckley).

Desmiphora canescens, n. sp. Parva, cinereo-albo dense pubescens, thoracis disco postico, humeris lineolisque laterali-posticis elytrorum fuscis, pilis longissimis passim vestita; thoracis disco fusco elytris postice albo-fascieulatis; antennis robustis dense longissime pilosis. Long. $3\frac{1}{4}$ lin.

One example.

Differs from almost all other species by the absence of crest of hairs from the base of the elytra. There is a small pencil of dark hairs in the usual situation on the front margin of the thorax, and another on each side of the disk; on the posterior declivity of the elytra there are also pencils of whitish hairs arranged almost in a semi-circle round a series of short parallel brown lines. A triangular patch of dark brown covers each shoulder of the elytra, and two large dark brown stripes lie on the posterior part of the surface of the thorax. There is no trace of raised lines on the elytra, and the punctuation is irregular. The only species to which it is closely allied is one from Jamaica.*

Estola vittulata, n. sp. Postice attenuata, setosa; sordide ochraceo-fusca, elytris vittâ communi postice angustatâ nigro-fuscâ; antennis articulis tertio, quarti dimidio, octavo et decimo carneo-testaceis. Long. $3\frac{1}{2}$ lin.

In Mr. Belt's and my own collection.

Less convex than other species, with the elytra slightly and straightly tapering behind. Clothed with short stiff dusky bristles. Dingy light-brown, the elytra with a common blackish stripe, very broad at the base and rapidly narrowing behind, terminating before the apex; the apex itself singly rounded or very obtusely and obliquely truncated. Antennæ dusky, with the third, eighth and tenth, and the basal halves of the fourth, ninth and eleventh, pale fleshy-testaceous. Thorax coarsely and thickly punctured. Elytra punctured, chiefly in rows.

Trestonia assulina, n. sp. Minus elongata, robusta; fusca, ochraceo-fusco tomentosa; fronte flavâ, maculâ

* *Desmiphora pallida*, n. sp. Pallide fusco-cinerea, pilis brevibus paucis vestita, antennis et tibiis rufescentibus; capitis vertice, thoracisque margine antico fusco-penicillatis; elytris humeris fuscis, postice cristis duabus transversis cinereo-penicillatis; sparsim punctatis. Long. 3— $3\frac{1}{2}$ lin.

mediâ transversâ fuscâ, vertice fusco; tuberibus antenniferis distantibus, acutis; thorace cylindrico; elytris oblongis, maculâ utrimque post medium fusco-velutinâ, curvatâ, antice integrâ plagâ cinereâ marginatâ, postice dentatâ; spatio apicali fusco, vix strigoso, maculâ intra-apicali cinereâ; abdomine medio atro-fusco, fulvo-maculato. Long. $6\frac{1}{2}$ — $7\frac{1}{2}$ lin.

Chontales, Mr. Belt; also Brazil? (coll. H. W. Bates).

Resembles *Trestonia capreola*; but elytra shorter and broader, antennæ unicolorous brown, &c. The dark, velvety crescent-shaped spot of the elytra is in the same position, far from the apex, and forms a smooth curve on its anterior margin, with two indentations in its posterior margin. The apical part is rather more tawny or ruddy in colour than the rest of the body and the cinereous spot is very oblique. The shoulders are subfalcate as in *Tr. capreola*. It agrees with none of the numerous species described by M. Buquet.

Hoplistocerus gemmatus, n. sp. Ovatus, viridi-æneus, cinereo-tomentosus, elytris (postice rotundato-dilatatis) passim maculis elevatis nitidis viridi-æneis conspersis, spatiis depressis dense tomentosis; antennis nigris, scapo nitido, elongato-pyriformi, articulis 3—4 basi griseis, 2—4 intus apice valde spinosis. Long. $4\frac{1}{2}$ lin. ♂.

One example.

Differs in shape from other species of the genus, approaching *Cyclopeplus*; but only moderately convex. Antennæ as in the typical species, second, third and fourth joints strongly spined, and eleventh slender, claw-shaped; the scape, however, is more slender at the base than in *H. gloriosus*. Beneath, the body and coxæ are dark, glossy, brassy-green, with the sides coarsely clothed with laid ash-coloured hairs; the legs are black and similarly pubescent. The upper surface is coarsely tomentose; the head scantily so, with green ground colour; the thorax very short and transverse, unarmed, and with five naked, glossy, slightly raised spots on the disk. The elytra are gradually dilated from the base; their surface more densely tomentose, but only in the depressions; the raised parts consisting of a multitude of raised tubercles very irregular in size and shape and marked with large punctures; all glossy, dark metallic-green.

Acanthoderes bivitta, White, Cat. Long. Brit. Mus.
p. 354 (*Steirastoma*).

A widely-distributed species, Amazons; Cayenne; Nicaragua.

Acrocinus longimanus, L.

Oreodera obsoleta, n. sp. *O. costaricensis* similis. Modice elongata, paulo convexa, sordide fulvo-fusca; thorace disco tuberculis concoloribus duabus, lateribus obtuse tuberosis; elytris cristâ basali parvâ penicillatâ, apice breviter truncatis, suprâ sparsim punctatis postice lineolis indistincte fulguratis, griseis, sericeo-fusco marginatis; antennis articulis basi griseis; tibiis griseo-annulatis.

Two examples.

Very similar in shape to *O. costaricensis*; having also a similar thorax and small, penicillated basal crests on the elytra; but the general colour quite different, being, instead of grayish-olive, tawny or ruddy-brown. The elytra, too, have no trace of brown, silky fasciæ, but are marked with fine streaks of lighter and darker hue, generally longitudinal and somewhat zig-zag in direction. The thorax is sparingly but strongly punctured throughout.

Oreodera semialba, n. sp. Latior, oblonga, depressa; atro-fusca, elytris plagâ magnâ communi lateraliter sinuatâ, cinereo-albâ; thorace lato, transverso, disco tuberculis tribus elevatis nitidis, lateribus tubere magno; elytris basi latis quadratis, postice attenuatis, apice subsinuatim truncatis et extus acute spinosis, suprâ basi nitide sparsim granulatis, deinde sparsissime punctatis. Long. 8 lin. ♂.

One example.

A very distinct species, rather shorter but similar in form to *O. glauca*. General colour very dark brown, clothed with fine, smooth grayish-brown pile. The thorax has on the disk three prominent, shining tubercles, arranged in the usual triangular position; the anterior and posterior borders have a row of large punctures, but the disk is very sparingly punctured; the large, conical, side tubercles have a sharp ring-groove round their base as in *Acrocinus longimanus*. The large grayish chalky-white patch of the elytra is a modification of the usual gray patch in other species, but it is not continued along the posterior

third as in most cases, the apical portion being indicated in outline, but of a brown colour; it does not reach the base, or sides, and is emarginated laterally, about the middle, by a broad lobe of the dark-brown marginal colour. The apex of the elytra is truncated, with the sutural angle acute and slightly produced, the exterior angle prolonged into a sharp spine. The long, clavate femora have a fulgurated gray mark.

Lagocheirus obsoletus, Thoms. Class. des Céramb. p. 9.

Agrees with Mexican specimens, which I believe are correctly referable to this species.

Leptostylus palliatus, n. sp. Oblongus, fuscus, capite thoraceque ochraceo-cinereis, elytris albo-cinereis, maculâ apicali magnâ atro-fuscâ antice undatâ, setisque cinereis seriatim ordinatis. Long. 5 lin.

One example.

Similar in shape, degree of convexity and colour to *L. transversus* (Gyll.), but the surface smooth and not tuberculated, and the dark apical patch of the elytra having its anterior margin sharply undulated. The head and thorax are very smoothly and thickly clothed with laid ochreous-ashy pile, so that scarcely any punctuation is visible and no tubercular elevations, the lateral tubercles being obtuse and the base slightly depressed and constricted. The elytra are gradually declivous and narrowed towards the apex, which is narrow and obliquely and sharply truncated; the surface is smooth and furnished with rows of short, stiff whitish bristles springing from raised lines; two-thirds of the surface is whitish-ashy, and this colour is sharply separated from the dark apex by a line of whiter colour, a narrow stripe of brown extending on each side from the shoulder but scarcely protruding on the white dorsal surface. The antennæ are brown and speckled; the apical joints ringed with ashy.

Leptostylus hispidulus, n. sp. Ovatus, convexus, postice obtusus; fuscus, vix cinereo- et fulvo-nebulosus; thorace subquadrato, multituberculato, tuberculis lateralibus haud productis; elytris fasciculis acuminatis setarum seriatim ordinatis, apice breviter obtuse truncatis, ante apicem fasciâ curvatâ atro-fuscâ. Long. $4\frac{1}{2}$ —5 lin.

Two examples.

More ovate and convex in form, like *L. triangulifer*; general colour and facies of *L. aculiferus*, but much more ovate. Dark rusty-brown, thorax varied with yellowish-ashy; antennæ dark ashy, speckled, apices of joints dark. Disk of thorax with five large obtuse tubercles; lateral tubercles scarcely prominent. Elytra ovate, rapidly declivous and not tapering at the apex, the latter briefly and obtusely truncated; the surface hispid with numerous little fascicles of short bristles, springing from small tubercles arranged down the raised lines of the elytra; the base on each side obtusely elevated; before the apex, in the usual situation, is a curved bar of dark brown, distinct only in certain lights.

L. cineraceus, n. sp. *L. gibbuloso** similis, at differt elytris basi haud gibbosis. Oblongo-ovatus, convexus, olivaceo-cinereus, thorace albescenti; elytris apice subacute rotundatis, haud truncatis, suprâ fasciculis fuscis setarum seriatim digestis, maculâ laterali arcuatâ lineolâque utrimque obliquâ discoidali pone medium, fuscis; thorace quadrato, disco 5-tuberculato, tuberculis lateralibus haud productis; antennis piceo-testaccis, irroratis, articulis 5—11 basi cinereis. Long. $4\frac{1}{2}$ lin.

One example.

Similar in form to *L. aculiferus*, but more ovate, and the dusky fascia of the elytra, instead of being transverse and near the apex, is very oblique and placed a little after the middle. The general colour and form are the same as in *L. gibbulosus* of Venezuela, which differs in having a large basal hump on each elytron. The colour is ashy, with an olive-green tint, but whiter on the thorax. The elytra differ from most species in not being truncated, but slightly tapering at the apex; their surface is hispid with fascicles of dusky setæ arranged in rows; the usual curved brown lateral spot is tolerably well marked.

Lepturges fragillimus, Bates, Ann. Mag. Nat. Hist.

L. seavittatus, n. sp. Elongato-ellipticus, depressus,

* *Leptostylus gibbulosus*, n. sp. Oblongo-ovatus, olivaceo-cinereus; elytris apice singulatim rotundatis, basin versus utrimque gibbosis, suprâ fasciculis setarum seriatim digestis, maculâ parvâ laterali, lineolâque obliquâ pone medium fuscis; thorace quadrato, disco plurituberculato, tuberculis lateralibus obsolete; corpore subtus, pedibus antennisque cinereis, his articulis 4—11 apice fuscis. Long. 5 lin.

Hab.—Venezuela (Goering).

fusco-piceus; thorace trapeziformi, griseo-tomentoso, vittis latis dorsalibus duabus fusco-piceis, spinâ laterali prope angulum posticum sitâ; elytris apice acutis, obliquissime truncatis, griseis, vittis utrimque tribus fusco-piceis quarum 1^{ma} et 2^{nda} ante apicem conjunctis. Long. $2\frac{3}{4}$ —3 lin. ♂.

♂ Segmentum ultimum ventrale, apice emarginatum; dorsale obtusum.

The general colour is dull reddish, clothed with very fine grayish pile. The thorax and elytra have the ground colour grayish, with stripes of pitchy-reddish; two on the thorax and three on each elytron. The first elytral stripe is near the suture and is narrowed in two places, but, after junction with the second, reaches the apex; the third is near the lateral margin, broader than the others and widens in two places, inclosing there a narrow gray streak, as though the stripe were made up of the junction of two. The head, antennæ and legs are uniform reddish.

L. tigrellus, n. sp. Parvus, ovatus, depressus; flavo-testaceus, tomento ochreo-griseo vestitus; vittis medianis duabus thoracis, guttisque clytrorum in seriebus duabus digestis, fuscis; thorace transverso, spinis lateralibus validis prope angulum sitis, basi abrupte angustato et supra depresso; elytris apice oblique sinuato-truncatis. Long. $1\frac{1}{2}$ lin.

Closely allied to *L. musculus*; similar in form and in truncature of elytra; but thoracic spines longer and more acute, and colour different. Pale testaceous, with sides of body underneath and parts of the legs and antennæ inclining to dusky. The disk of the thorax has two broad and short brown vittæ close together. The elytra have the suture and two lines of spots rusty-brown; the sutural line becoming macular towards the apex and the exterior stripe of spots forming, here and there, larger, irregular patches.

L. gratiosus, n. sp. *L. amabili* simillimus. Elongatus, angustus, atro-fuscus, griseo læte tomentosus; thorace vittis duabus, elytris griseis, maculâ rotundâ prope scutellum, margine laterali ante medium in maculam dilatato et pone medium fasciam latam emittenti nigris; antennis fusco-rufis; thorace quadrato, lateribus rectis, spinâ validâ fere ad angulum posticum sitâ. Long. $3\frac{1}{4}$ lin. ♂.

♂ Segmentum ultimum ventrale apice truncatum, leviter emarginatum; dorsale rotundatum.

Much resembles *L. amabilis*; differing only in being still more elongated, the sides of the thorax much straighter, and the black spots of the elytra differently arranged. These spots consist of a round one near the scutellum, a sutural stripe ceasing long before the apex and much narrowed near the scutellum, a broad fascia (dentated on its margin) behind the middle, and two lateral spots, one before the fascia (and separated from it) and the other behind the fascia and nearly blended with it; a black border extends from the humeral callus to the hindmost spot, leaving the apex, like the rest of the ground colour, clear gray. The apex itself is obliquely truncated, and the elytra are tapering; the surface has a very fine punctuation. The thorax is unusually long, and the sides remarkably straight from the fore-margin to the spine, which is situated very near to the hind angle.

Tetraopes umbonatus, Leconte, Journ. Ac. Phil. Ser. 2, vol. ii. p. 157.

Agrees with Mexican examples.

Phæa mirabilis, n. sp. Magna, cylindrica, nigra, infrà griseo-pubescentis; capite, thorace et elytris suprâ rubro-sanguineis; his apice late, thoracisque disco valde elevato, nigris. Long. $7\frac{1}{4}$ lin.

One example.

The largest species yet described of this genus. Rather densely clothed with erect hairs. Head red, sparingly punctured. Antennæ black; underneath ashy-pubescent. Thorax as wide as the head, moderately grooved transversely in front and behind; sides obtusely tuberculated in the middle; disk forming a sharply-elevated quadrate plate, deeply grooved all round, black, with a dense brush of black hairs; the black colour extending to the base and over the scutellum. Elytra as wide as the thorax, elongate, parallel, above nearly plane, punctulated partly in rows; blood red, with a spot on the humeral callus, and the apical fourth black, the apical patch with a straight transverse anterior margin.

Isomerida lineata, n. sp. *I. albicollis* paulo major et robustior, dense incumbenti-pubescentis, pilisque brevibus erectis subdense vestitis; fusca, elytris vittâ angustâ medianâ (apice haud attingenti) margineque laterali testaceo-rufis;

capite, thorace, femoribus, pro- et meso-sternis, testaceo-fulvis; abdomine segmentis 3—4 albo-pubescentibus; antennis ut in *I. albicollis* (♀) corpore brevioribus, nigris, infrà ciliatis; articulis basi testaceis, tertio quàm quarto triente longiori. Long. 6 lin. ♀.

Chontales.

Var. Capite et thoracisque disco atro-fuscis, ♀. New Granada.

♂? Antennis corpore longioribus; elytris haud rufovittatis, suturâque pallidâ; thorace disco nigro-vittato. Chontales.

The elytra are broadly and rather obtusely truncated at the apex; the surface punctulated, chiefly in lines; the sides (above the epipleuræ) bicarinated. The thorax is considerably narrowed in front, the sides tumid, almost tuberculated, in the middle.

I have some doubt about the ♂ here described belonging to the same species; as what I take to be the ♂ of the slight New Granadan variety differs from it considerably. But I have only seen one specimen of each sex of the Chontales form.

Erana pusilla, n. sp. Nigra, griseo subtiliter pubescens, et sparsim erecte pilosa; capite, thorace antice scutelloque testaceo-fulvis; antennis filiformibus, pilosis, infra longe sparsim ciliatis, testaceo-fulvis, scapo elongato et articulo secundo nigris, cæteris apice fuscis; pedibus flavo-testaceis, tibiis intermediis et posticis apice nigris, tarsis fusco-maculatis; episternis albo-tomentosis; corpore suprâ, et metasterno subgrosse haud dense punctatis. Long. 3 lin.

One example.

The same species occurs in Mexico, as a variety, differing only in the head being dusky and the thorax having a large fulvous spot in the middle, instead of on the anterior margin. Having only one example of each before me, it cannot be decided whether this is a local form, or whether (which is more probable) the colour is variable.

The genus *Erana*, according to the typical species, *E. cincticornis*, has the head retractile and the scape long and rather slender; it is, therefore wrongly defined by Lacordaire, who places it in the group *Ærenicites*, which have the head exerted. *Saperda triangularis*, Germar, must be removed from the genus.

Eumathes cuprascens, n. sp. *Eu. undato* paulo brevior

et convexior; fusco-cupreus, sericeo-nitens, subtilissime pubescens et nigro-setosus; capite et thorace grosse sparsim punctatis, hoc spinâ laterali acutâ; elytris lineatim punctatis, apice obtuse rotundatis. Long. 5 lin.

One example.

Agrees in all its generic characters with *Eu. undatus* and *Amazonicus*, even to the sharp keel of the mesosternum; but differs totally in facies, owing to its rather more convex elytra and shining coppery-brown colour, without any variegation. The short stiff black bristles are implanted in regular rows on the elytra.

CYMATONYCHA, nov. gen.

Genus intermedium; subfamiliis *Etolinæ*, *Gryllicinæ* et *Hebestolinæ* æqualiter affine. Forma corporis *Gryllicæ* similis; sed unguibus tarsorum basi leviter dentatis, tibiisque intermediis extus emarginatis. Caput retractile; inter antennis triangulariter concavum. Thorax subovatus, inermis. Elytra ad humeros lata, deinde usque ad apices attenuata. Antennæ filiformes, ciliatæ, scapo cylindrico, basi extus subito angustato. Acetabula intermedia vix aperta. Mesosternum fortiter tuberculatum. Pedes subelongati; femora gradatim clavata. Tarsi robusti; ungues divaricati, prope basin intus breviter late dentati. Tibiæ intermediae extus emarginatæ.

The plain-coloured insect forming this genus is interesting as furnishing a connecting link between the three subfamilies mentioned above, and as probably indicating the true point of transition from the *Lamia* to the *Saperda* type. The rounded thorax and trigonal elytra, so much wider at the base than the thorax, give it some general resemblance to the *testacea* group of *Leptura*. The thorax might be described as subcylindrical, with the sides somewhat regularly and strongly rounded.

C. castanea, n. sp. Fusco-nigra; thorace fusco-castaneo, elytris rufo-castaneis; subtilissime griseo-pubescens; capite lævi; thorace disperse fortiter punctato; elytris apice late truncatis angulis externis dentatis, suprâ sparsim punctulatis subnitidis, nigro-setosis. Long. $5\frac{3}{4}$ lin.

One example, apparently ♂.

The affinity to the *Gryllicinæ* consists in the general form, and strong concavity of the crown; but the intermediate tibiæ in that group are entire. The broad but

distinct tooth near the base of the claws is a decided rudiment of the broad projection which forms the "appendiculated" claw of the *Gryllicinæ* and many of the *Saperdinæ*. On re-examination I find some of the true *Estolæ* have indications of a tooth at the base of the claw. There can be no doubt therefore that the *Hebestolinæ* group, which Lacordaire places at the end of the *Saperda* tribe, have a real affinity (as their facies would lead us to suppose) with the *Estolinæ*. The connection with the *Saperdæ* is therefore from *Pogonocherus*, *Estola*, and allies, through *Hebestolinæ* and *Callianæ*.



VIII. *Note on Mynes Guerini, Wallace.*

By W. H. MISKIN.

[Read 17th November, 1873.]

IN "Notes on Eastern Butterflies," contained in the Transactions of the Entomological Society of London for 1869, p. 77, Mr. Wallace, treating on the genus *Mynes* (Westwood), describes an insect in his collection (a female), from this colony, and, considering it distinct from *M. Geoffroyi* (Guérin), makes it a new species under the above name.

Having been so fortunate as to secure a tolerably perfect series of this very rare insect, I propose to offer a description of my specimens, comprising individuals of both sexes, and also a few remarks based upon my observations of these and examination of several specimens in some other collections.

The result of my investigations is to raise a doubt in my mind as to the correctness of Mr. Wallace's conclusion, that our species is distinct from *M. Geoffroyi*.

It will be observed that very considerable variation exists in the individuals I describe, both in dimensions and markings, and I have noticed the same inconstancy prevailing in other specimens that I have examined beside my own. This is more particularly noticeable in the female, the males as a rule being tolerably consistent in their appearance, except in the case of the decided variety I have described, and which, singularly enough, appears to be almost identical with the specimen from Dorey described by Mr. Wallace; this fact of itself should, I imagine, be alone sufficient to establish the identity of our species with *M. Geoffroyi*. Other points of difference upon which Mr. Wallace distinguishes his species are not sufficiently important, I respectfully suggest, to justify the separation of these insects into distinct species, especially taking into consideration the peculiarly variable disposition I have shown to exist in the species.

A. *Male*.—Anterior wings with broad margin of deep black on outer side, widest at top, where it extends about one-third along the costa, but decreasing in width towards the hinder margin, where it is less than one-fourth the width of the wing; the whole of the rest of the wing is one uniform shade of greenish-white; the inner edge of the black margin is sharply and clearly defined; at the apical angle and within the black margin are a series of three irregularly-shaped and different-sized white spots describing an arc.

Posterior wings.—Ground colour same as front wings, with a tolerably wide outer margin extending to the anal angle; this margin for about one-third of the way down is deep black, the remainder of a slaty-green colour.

Under side.—Both wings dark brown, nearly black, the front wings alone have a wide inner margin of white; the apical spots of the upper side are here replaced by a curved band of deep yellow, there is also a small patch of white about half-way along the costa; midway along the outer margin, but not quite touching the edge, is a spot of ochreous-red.

At the base of the posterior wing, and extending about one-third of the way along the front border, is a band of ochreous-red; while also, starting from the base, but bordering the anal margin, and turning a little way into the wing (where it is gradually lost) before reaching the anal angle, is a band of bright yellow; the outer border is marked by a line of white continuing round to the anal angle; within this is a marginal band of black, and between the two is another narrow whitish band; this latter is interrupted in the tailed portion of the wing by a band of dusky yellow; the tail is bordered by a row of lunule-shaped black patches; breast bright yellow.

Expanse of wings $2\frac{5}{16}$ inches.

Hab.—Rockhampton.

B. *Female*.—Anterior wings with nearly two-thirds of the outer portion black, rest of wing cloudy white; inner edge of black is not sharply defined as in the ♂.

Posterior wings.—The outer black margin extending a considerable distance along the front border, and nearly round to the anal angle; this margin, for some distance from its termination, does not touch the edge of the wing, but is bordered on each side by dusky slaty green, amongst which it loses itself before reaching the anal angle; the

latter colour gets gradually lighter in the disc of the wing, until, reaching the base, it is nearly white.

Under side.—Same as in the δ , excepting that the posterior wing has a narrow band of dusky yellow running parallel with but at some distance from the outer margin; this band is more or less defined, but is most distinct at its commencement from the front margin, it continues round until it meets the bright yellow band starting from the base.

Expanse of wings $2\frac{9}{16}$ inches.

Hab.—Nerang Creek.

C. *Female*.—Upper side almost same as preceding, not quite so much black on front wing; the hind wing with hardly any black margin, the dark green continuing from the outer border some distance in, and then gradually getting lighter towards the base. Under side same as preceding.

Expanse of wings $2\frac{1}{16}$ inches.

Hab.—Brisbane (bred).

D. *Male*.—Variety.—Upper side presents the usual appearance in this sex as described in first specimen, having the deep black, sharply-defined, and narrow marginal band.

Under side.—The posterior wings present exactly the appearance described by Mr. Wallace in his variety of *M. Geoffroyi* from Dorey; in addition the front wings are also nearly wholly white, the only black part being the costal margin and the apical portion containing the white, yellow, and red spots; nor is there much of the dark colour left in the hind wings, excepting a band along the front margin, the posterior portion beneath the white spot (which nearly traverses the wing) being succeeded by bands of ashy-yellow interlined with white; the base of the wing is broadly suffused with rich yellow.

Expanse of wings $2\frac{1}{4}$ inches.

Hab.—Rockhampton.

This last specimen was taken in company with others presenting the ordinary form, and is exactly similar to another specimen I have seen from Mackay.

A very singular feature (one that I do not remember ever having heard of as prevailing amongst any of the *Rhoplocera*) exists in the economy of this insect, viz., the fact of the larvæ (which are gregarious in their habits)

pursuing their social instincts, even to their assuming the pupa state, the chrysalides being found suspended together in a little group of three or four individuals united at the tails. I have never been so fortunate as to trace this insect through its various stages myself, but a lamented friend upon one occasion, some years ago, reared a brood from the larvæ; and a group of the pupa skins so united still remain in a drawer of his cabinet, which has now, however, passed into other hands.

IX. Note on "A Catalogue of the described Diurnal Lepidoptera of Australia, by Mr. George Masters, of the Sydney Museum." By W. H. MISKIN.

[Read 1st December, 1873.]

THE following remarks are suggested by the appearance of "A Catalogue of the described Diurnal *Lepidoptera* of Australia, by Mr. Geo. Masters, of the Sydney Museum."

Mr. Masters, in his prefatory remarks, admits that his Catalogue is chiefly compiled from Kirby's Catalogue of Diurnal *Lepidoptera*; to me the Catalogue appears, with one or two exceptions, simply an extract from that well-known work, and is certainly far, very far, from being what it purports to be, *i. e.*, a correct or complete list of the described butterflies of Australia; to my mind it displays an amount of ignorance of the subject upon which the author treats that surprises me, considering the facilities which I should imagine he possessed of obtaining information on the matter, and which I should have supposed he would have availed himself of before publishing his Catalogue.

I take the liberty of offering some observations upon the synonymy adopted in several cases where it appears to me errors exist, and of also adding the names of many species which are known to me as undoubtedly Australian, and of some other reputed ones which are totally omitted by Mr. Masters in his Catalogue; in doing so I have not scrupled in some cases, and with all deference, to differ from the opinions of other authorities besides Mr. Masters in the synonymy of some of our species. I only regret that the very limited opportunities of consulting authoritative works on the subject prevent my bringing to bear a deeper and more thorough knowledge of a matter in which I feel a very great deal of interest.

The arrangement of the genera adopted by Mr. Masters is a puzzle to me; I cannot understand upon what principle or rule he prefers in some cases names (restored by

Mr. Kirby, amidst much opposition, in place of familiar, well-established ones) such as *Eurema*, *Hypolimnas*, *Cupido*, &c., while in other cases, disregarding Kirby's stern law of priority, he abandons *Catopsilia* for *Calidryas*, and altogether ignores such genera as *Tachyris*, *Delias*, *Hypocysta*, &c. In several cases I think Mr. Masters might, with advantage, have added the synonyms of many of his genera.

In the arrangement of the families, I am with Mr. Masters for adhering to the old system of commencing with the *Papilionidæ*, and also concur in his view of the distinction of the genus *Ornithoptera*. With regard to the species of the last-named genus, our three best known, viz., *Pronomus*, *Cassandra*, and *Richmondia*, are, as he says, quite sufficiently distinguished by constancy, both of markings and locality, to entitle them to be considered separate species.

In the genus *Papilio*, Mr. Masters omits a well-authenticated Cape York species, viz. :—

Ægistus (Lin.).—This insect I have in my own collection from that locality, and know of several other specimens from the same place.

I have also to add—

Ormenus (Guér.).—Two specimens I know to have been taken at Cape York, one of which is in my own collection.

Erectheus.—Donovan described the ♂ under this name and the ♀ as *Ægeus*. Kirby gives precedence to the latter name, probably according to the order in Donovan's work; the former is, however, the name most generally adopted.

Erithonius (Cram.).—Our insect described under the name of *Sthenelus* by Macleay is constant in the distinguishing peculiarity pointed out by that gentleman as separating it from the Indian form, which it closely resembles, viz., in the large discoidal spot on the anterior wing never being divided; it is therefore, I think, entitled to be considered a variety of this species.

Ilioneus (Don.).—This name must be abandoned, having been adopted for a N. American insect (Smith & Abbott, Lep. Ins. Georgia, i. t. 2, 1797), and Felder's name, *Amphiaraus*, substituted.

Lycaon (Westw.) is undoubtedly but a variety of *Eurypylus* (Lin.); it differs but little, if at all, from the

Indian form, with which I have compared specimens; our species is a somewhat variable insect.

Mr. Masters is doubtless correct in sinking the name *Scottianus* (Feld.), considering it a synonym of *Macleayanus*.

Xuthus (Lin.).—I think this insect must be permitted to remain on the list of Australian butterflies, however improbable the chances of its having been taken in Australia may appear. In the Cat. Pap. B. Museum a specimen contained in the national collection is authoritatively announced as from Port Essington.

Dissimilis (Lin.).—This is another species given as Australian in the Cat. Pap. B. M. p. 71, of which Mr. Masters makes no mention. Whether it is a reliable Australian species or not I am unable to say, but, like many others reputed as Australian, of which perhaps casual or accidental specimens only have been taken, or others which have been caught elsewhere and described as Australian in error—of which cases have occurred—they must remain, at any rate provisionally, in the list of Australian insects until more reliable and authentic information concerning them can be procured.

In the subfamily *Pierinæ* Mr. Masters ignores the genera *Tachyris* (Wall.) and *Delias* (Hüb.), without giving any reason; why, I cannot understand, as these genera appear quite sufficiently distinguished by the difference in the neuration of wings.

In the genus *Terias*, Mr. Masters includes *Hecabe* (Lin.) and *Sari* (Horsf.) as distinct species; there can be no doubt that the latter is the Australian form of *Hecabe*, and differs very little, if at all, from that well-known insect.

Two species in this subfamily quoted by Kirby appear to have been overlooked by Mr. Masters, viz.—

Delias Fragalactea (Butl.), (Thyc. F.), Ann. Nat. Hist. ser. iv. vol. iv. p. 243 (1869).

Pieris Javæ (Sparrm.).—(Pap. J.), Amœn. Acad. vii. p. 504, note 1 (1767). The ♀ appears to have been described by Donovan, under the name of *Pap. Deiopeia*, in his Ins. N. Holland, t. 21, f. 2 (1805).

Fam. DANAIDÆ.

Genus DANAIS (Latr.).

Mr. Masters expresses surprise that in Kirby's work *D. affinis* is treated, as he says, as a synonym or var. of

D. Plexippus; it is true that *affinis* is quoted as a var. of this latter species, but Mr. Masters appears not to have observed that in the appendix to Kirby's work the error is rectified.

Mr. Masters is wrong in making *Chrysippus* and *Petilia* distinct species; they are one and the same. *Petilia* (Stoll.), the Australian form of this world-wide species, differs but little from its congeners of other countries, but appears to me to assimilate more closely to the African form, with which it agrees in the almost total absence of the row of marginal white spots on the posterior wing; this characteristic seems most prominent in the Mauritius form, where we see the white spots distinctly and perfectly developed.

Our insect, described by Macleay under the name of *Hamata*, is sufficiently constant in its smaller size and slight difference of markings to be retained as a variety of the Indian insect it so nearly approaches, but it appears to me, on comparison, to resemble more closely Cramer's *Melissa*, than *Limniace*.

In the genus *Euplœa* Mr. Masters is again abroad: *Angasii* (Feld.) and *Corinna* (Macl.), given by him as distinct species, are both undoubted synonyms of *E. Sylvester* (Fab.).

E. Hyems (Butl.) gives precedence to Felder's name, *Arisbe*, the latter having priority of date.* See App. Kirby's Cat.

Acrœa Theodote (Wallen).—I think Mr. Masters is right in his remarks respecting this insect; it is certainly a mythical species.

Cethosia.—Another species should be added, viz., *Cyane* (Dru.), var. *Penthesilea* (Cram.), upon the authority of Mr. Macleay (King's Surv. Aust. p. 463).

Messaræ.—I think our species is *Madestes* (Hew.), not *Maonites*.

Pyrameis Cardui.—Our form is sufficiently distinct from the European to be at any rate considered a var.; I think, therefore, that Prof. M'Coy's name of *Kershawii* should hold good.

Diadema.—There are undoubtedly but two Australian species, both perfectly distinct: the one, *Alimena* (Lin.), varying but little in its individuals, if at all, and confined to the northern parts of the colony; the other varying in the ♀ only (of which there are three tolerably constant

* An. and Mag. 4th Ser. vol. viii. p. 290. See remarks by Mr. Butler in above respecting the dates of publication of the "Voyage of the Novara."—ED.

forms), but being in both sexes always constant in the markings on the under side; whether *Bolina* or *Lasinassa* as a specific name should have the preference for this latter species I confess I am unable to say. *Misippus* seems now to be applied to the African species, wherein the ♀ mimics *D. Chrysippus*; this form never occurs in Australia, and both sexes appear to me to present points clearly distinguishable from the Australian species.

Charaxes (Oct.)—This generic name is made by Mr. Kirby in his appendix to take precedence of *Nymphalis*.

Mynes.—As I have endeavoured to show in some former remarks, our species is identical with *Geoffroyi* of Guérin, and not distinct, as Mr. Wallace supposes.

Mr. Masters omits *Prothoe* (Hüb.), *Australis* (Guér.) (*Mynes Leucis* of Boisdl.), quoted as Australian, from Port Denison. See Proc. Ent. Soc. N. S. iv. p. 58.

To the genus *Lycæna* (Fab.), or, as Mr. Masters has it, *Cupido*, I have to add the following, omitted by Mr. Masters:—

Boetica (Lin.).

Cassius (Cram.).

Pavana (Horsf.).

Palmyra (Feld.).

All of these have been determined by Mr. Hewitson.

Salamandri (Macl.) is a synonym of *Taygetus* (Feld.); the latter name takes precedence.

Hypolycæna (Feld.), *Phorbas* (Fab.) (♀ *H. Dictæa*, Feld.), with which Mr. Masters seems unacquainted, is a tolerably common insect from Rockhampton northwards.

Sithon (Hüb.), *Phocides* (Fab.), var. *Sugriva* (Horsf.), is also a well-known Cape York species.

Amblypodia—*Centaurus* (Fab.)—is wrong: this is not Australian; the common species, abundant from Port Denison to Cape York, is figured by Hewitson, in the B. M. Cat., *Lycænidæ*—the ♂, at t. 4, f. 29, 30, 31, under the name of *Adatha* (a synonym of *Micale*, Blanch.), and the ♀, at t. ii. f. 7, 8, 9, described at p. 4 under name of *Amytis*. The name *Micale* (Blanch.) has therefore, I presume, priority.

Amongst the *Hesperidæ* I observe the following omissions in the Catalogue:—

ISMENE.

Discolor (Feld.), (Gon. D.).—Wien. Ent. Mon. iii. p. 405, n. 50 (1859).

Common, Queensland.

Hurama (Butl.), (Hesp. H.).—Trans. Ent. Soc. p. 498 (1870).

Hab.—Cape York.

Chromus (Cram.), (Pap. Ch.).—Pap. Ex. iii. t. 284, E. (1782).

Hab.—Queensland. This insect has been determined by Mr. Hewitson.

PAMPHILA.

Augiades (Feld.).—Sitzb. Ak. Wiss. Math. Nat. Cl. xi. p. 461, n. 51 (1860).

Hab.—Queensland. Same authority.

Many more species have yet to be added to the list of Australian *Diurni*, several of which will doubtless prove new to science, and many species contained in Mr. Masters' Catalogue besides those I have mentioned will have to be erased, as our acquaintance with the Australian fauna progresses, many being unquestionably assigned as Australian without foundation, and many other of the names being synonyms or representing mere varieties or sexes.

The want of a work embracing not only a list of the described species, but the *descriptions* also, is severely felt by the Australian entomologist; the original descriptions, being distributed amongst a vast number of works and in a variety of languages, renders the process of determination a slow and wearisome task in a country where but few of these works are accessible. I trust, however, in course of time to see some such work on our insects as that of Mr. Trimen's on the South African Butterflies, a work that would prove an inestimable boon to entomologists here, and be the means of stimulating the prosecution of this delightful science in the Australian colonies.

X. *Monograph of the Genus Xylocopa, Latr.* By
 FREDERICK SMITH, Assistant in the Zoological
 Department of the British Museum.

[Read 5th January, 1874.]

THERE is no genus of bees, in the family *Apidæ*, that is in my opinion more difficult of elucidation than *Xylocopa*; the sexes of many species can only be correctly assimilated when direct observation of their habits furnishes the evidence necessary to warrant their union. The males of numerous species are of a buff or fulvous colour, whilst the females are totally black; the sexes are usually about the same size, but the males of some species have very large approximating eyes, as in the case of the drones of the hive bee, whilst others are quite lateral, agreeing with those of the majority of the insect tribe. Several other peculiarities distinguish certain species of this genus, such as the dilatation of the apex of the first joint of the antennæ; and, in other instances, the intermediate legs are elongated, agreeing in this respect with several species belonging to the extensive genus *Anthophora*. The females may be divided into two sections; the first includes the majority of the species, and is distinguished by having the metathorax more or less rounded posteriorly; the second section have the same division of the thorax abruptly truncate, the hinder margin of the scutellum having a sharp edge, and being more or less submarginate.

Lepeletier de St. Fargeau has divided the genus into sections: the first contains those species, the labrum of which has three longitudinal elevated lines; this is true of his first species, but in the third the three elevations are rather tubercles than longitudinal elevations. The second section is said to be without elevated lines, and to be distinguished by having only a tubercle at the middle of the base of the labrum; this does not hold good as regards many of the species placed in the section. I have dissected several, and find in each three tubercles; these are not readily distinguished unless the labrum is detached from the clypeus. *Xylocopa flavo-rufa*, and also *X. æstuans*, have each three tubercles, and this I believe will

be found to be the case in the majority of the other species.

A very distinct section might be formed of those species, in which the eyes of the males are greatly enlarged, occupying the greater part of the head, and meeting or closely approximating at the vertex; but the present state of our knowledge of the genus scarcely warrants its formation, the males of numerous species being still unknown. The colouring of the wings I have found a very useful character; this however requires one or two considerations. Specimens quite recently taken have a brilliancy which is never retained in old cabinet specimens, or even in such as had been long disclosed at the time of their capture. On receiving a series of females of *Xylocopa latipes*, captured near Calcutta, by Mr. G. A. James Rothney, their brilliancy at first induced me to think I had a new species before me; these circumstances should be always considered, and when this is done the colour of the wings will be found a very useful auxiliary in the determination of species.*

I have had the advantage of examining several type-specimens of the species described by St. Fargeau, but I must confess to have experienced great difficulty, in many instances, in my endeavours to master his work on this genus.

In eleven instances St. Fargeau omits to give the size of the species, and in others the size of one or other of the sexes is not given, and the localities are not always indicated; these circumstances combined, to say little of the descriptions themselves, which are very deficient in discriminative character, have rendered my labour somewhat perplexing. My own descriptions will probably be considered, in some instances, to be merely diagnostic. I have endeavoured to give in all cases just sufficient to enable the student to make out his species; it is certainly a mere useless incumbrance to describe over and over again characters common to every species of the genus. This paper must be considered as an endeavour to supply material for a much more complete monograph to be compiled by some

* The form and sculpture of the clypeus have been noticed as presenting good specific characters, but the examination of a good series of a species, which is distinguished by having lateral tubercles on that part of the face, has proved that such characters are extremely variable, so much so as to be obsolete in some examples; the puncturing of the clypeus is frequently a very useful character.

future Hymenopterist. I have felt it incumbent on myself to place in the hands of entomologists all the materials which in the course of years I have been able to accumulate. I have neglected no opportunity of endeavouring to induce collectors in foreign countries to make careful observations of the economies of these insects, and I may mention Herr Gueinzus, as one who paid much attention to the habits of *Hymenoptera*, and who on many occasions has furnished highly interesting information on the insects found in the district of Port Natal. In the British Museum are many nests, with the insects bred from them; some of the results of such observations will be found to be acknowledged in this paper. To Mr. H. W. Bates also I have been frequently indebted for valuable information of the habits of the *Hymenoptera*; and in one or two instances the propriety of uniting the sexes of species of *Xylocopa* found in Brazil have been confirmed by his observations. I have divided the genus into geographical sections, and these I have again subdivided, each into three divisions; the first contains those species of which the two sexes are similarly coloured; the second, species of which the sexes are differently coloured; my third division consists of species of which only one sex is known. This arrangement will I trust greatly simplify the study of this extensive genus, no less than one hundred and twenty-three being recorded in this paper. I have thus amassed materials which other hands may hereafter arrange, probably in a more orderly and scientific manner.

One or two of my sections have been named generically. I, however, only consider them of divisional value.

In the genus *Xylocopa*, as in that of *Megachile*, the males of some species have the anterior tarsi dilated; other species of *Xylocopa* have the intermediate legs greatly elongated; a similar section is found in the genus *Anthophora*. Lepeletier de St. Fargeau has proposed the generic name *Audinetia* for the division to which *X. latipes* belongs, the males having the eyes very large, and approximating on the vertex; the anterior tarsi are dilated and thickly fringed behind; the females have the metathorax abruptly truncate, the posterior margin of the scutellum being somewhat elevated and sharply edged. In this section he places his species *X. crassa*, which is the female of *X. torrida*, the male of which has the anterior tarsi simple. Another sub-genus of St. Fargeau, *Schönherria*, is characterized by the females having the

scutellum inclined and not elevated at its posterior margin; the abdomen oblong and depressed; the males are said to have the anterior tarsi slightly dilated; the first of these characters are common to many females not included in the section, and that applied to the males I have been unable to detect.

The genus most closely allied to *Xylocopa* is that of *Lestis*, consisting at present of two Australian species; in this genus both the labial and maxillary palpi are four-jointed.

Genus XYLOCOPA (Latr.)

Head transverse, subrotundate; ocelli placed in a triangle on the vertex. Eyes lateral, elongate-ovate, varying in size in the females; in the males varying greatly, in some species occupying the greater part of the head, and closely approximating at their summit. Mandibles short, stout, and usually with three blunt teeth at their apex. Maxillary palpi 6-jointed; the three basal joints much longer and thicker than the three apical ones, each in succession decreasing in length. Labial palpi 4-jointed; the basal joint elongate, being five times the length of the second; the two apical joints minute, and inserted in a line with the other joints. Anterior wings with one elongate marginal cell, acute at its apex; three submarginal cells, the third as long as the first and second united; the second of an irregular subtriangular shape; the first recurrent nervure uniting with the second transverso-medial nervure; the second entering the third submarginal cell towards its apex. The anterior and intermediate tibiae with a single spine at their apex; that on former flattened and obliquely truncate at the apex; the posterior tibiae have two simple spines at their apex; the claws of the tarsi bifid. The legs of the males sometimes elongated; the intermediate legs, in one or two species, greatly so.

SPECIES OF EUROPE.

- Div. 1.—Males and females similarly coloured. Species 1 to 5.
 Div. 2.—Males of a different colour to the females. None.
 Div. 3.—Only one sex of the species known. Species 6 to 7.

SPECIES OF AFRICA.

- Div. 1.—Males and females similarly coloured. Species 8 to 13.
 Div. 2.—Males of a different colour to the females. Species 14 to 21.
 Div. 3.—Only one sex of the species known. Species 22 to 40.

SPECIES OF ASIA, THE ISLANDS OF THE MALAY ARCHIPELAGO,
AND OF AUSTRALIA.

Div. 1.—Males and females similarly coloured. Species 41 to 53.

Div. 2.—Males of a different colour to the females. Species 54 to 59.

Div. 3.—Only one sex of the species known. Species 60 to 77.

SPECIES OF SOUTH AMERICA, BRAZIL, AND THE WEST INDIA
ISLANDS.

Div. 1.—Males and females similarly coloured. Species 78 to 80.

Div. 2.—Males of a different colour to the females. Species 81 to 83.

Div. 3.—Only one sex of the species known. Species 84 to 111.

SPECIES OF NORTH AMERICA.

Div. 1.—Males and females similarly coloured. Species 112 to 116.

Div. 2.—Males of a different colour to the females. Species 117, 118.

Div. 3.—Only one sex of the species known. Species 119 to 123.

Geographical Distribution of the Species.

Europe, 7.

Africa, 33.

India, China and Malay Archipelago, 35.

Australia, 2.

South America and West Indies, 34.

North America, 12.

SPECIES OF EUROPE.

— 1. *Xylocopa violacea*.

Apis violacea, Syst. Nat. i. 959, ed. xii., ♀; Scop.
Ent. Carn. 305, fig. 812, ♀; Fabr.
Syst. Ent. 379; Ent. Syst. ii. 315;
Schrank. Ins. Austr. 394; Rossi,
Faun. Etrus. ii. 99; Panz. Faun.
Germ. 59, 6, ♀.

Xylocopa violacea, Latr. Gen. Crust. et Ins. iv. 159,
♂, ♀; Fabr. Syst. Piez. 338;
Westw. Nat. Libr. (Jardine) En-
tom. vi. 265, pl. 20, fig. 3, ♀; St.
Farg. Hym. ii. 183; Lucas, Explo.
Sc. Algér. iii. 166; Eversm. Bull.
Mosc. xxv. 125; Smith, Cat.
Hym. Ins., Apidæ, ii. 344; Gerst.
Stett. Ent. Zeit. (1872), p. 275.

Xylocopa femorata, Fabr. Syst. Piez. 339, ♂.
Reaum. Ins. vi. pl. v. fig. 1, 2.

This well known European species is entirely black, its pubescence black; its wings brown-black, with a brilliant violet iridescence. Length 10 to 12 lines.

Hab.—France; Germany; Dalmatia; Austria; Sicily; Italy; Russia; Sweden; Algeria; Syria.

2. *Xylocopa cyanescens*.

Xylocopa cyanescens, Brullé, Expéd. Scient. de Morée, Zool. iii. p. 339, pl. 48, fig. 8; Lucas, Explo. Sc. Algér. iii. 166; Smith, Cat. Hym. Ins., Apidæ, ii. 344; Gerst. Stett. Ent. Zeit. (1872), p. 279.

Xylocopa minuta, St. Farg. Hym. ii. 190, ♂, ♀.

Xylocopa taurica, Erichs. in Reis. in der Regentsch. Algier, von M. Wagner, iii. 192, ♂, ♀.

Blue, with occasionally violet tints on the abdomen; the head black, or blue-black; wings dark fuscous, with a violet iridescence; the male resembles the female in colour. The sexes are from five to six lines long.

Hab.—France; Switzerland; The Morea; Sicily; Syria; Algeria.

3. *Xylocopa Olivieri*.

Xylocopa Olivieri, St. Farg. Hym. ii. 192, ♂; Gerst. Stett. Ent. Zeit. (1872), p. 281.

Xylocopa hellenica, Spin. Ann. Soc. Ent. France, i. 2nd ser. (1843), p. 144.

Xylocopa fuscata, Smith, Cat. Hym. Ins., Apidæ, p. 345, ♀.

Xylocopa fasciata, Eversm. Bull. Soc. Nat. Mosc. (1854), ii. p. 198.

Female.—Rufo-fuscous, sometimes nigro-fuscous; the pubescence fulvous. Head much narrower than the thorax; antennæ ferruginous, usually more or less fuscous above; thorax densely pubescent above; wings slightly flavo-hyaline, the nervures and tegulæ rufo-testaceous; abdomen, the apical margins of the segments with narrow fasciæ of pale fulvous pubescence; that at the apex bright fulvous. The male resembles the female, but has the labrum and clypeus white. Length 10 lines.

Hab.—South-east of Europe; Greece; Turkey; Bagdad; Russia; Syria.

St. Fargeau in his description of the male does not notice the white clypeus and labrum; this renders it doubtful whether it really belongs to this species. Dr. Gerstäcker quotes, with a query, the probability of my *X. lanata*, from Turkey, belonging to this species. I observe the fol-

lowing differences in the only example I have seen: the head is shorter and rounder, the pubescence on the head and thorax white, a little tinged with fulvous on the disk of the thorax; the two apical segments of the abdomen are densely covered with bright fulvous pubescence; it is altogether a shorter and more compact insect. The specimen is in the finest condition.

4. *Xylocopa Cantabrica*.

Xylocopa cantabrita, St. Farg. Hym. ii. p. 193, ♂, ♀.

Xylocopa sinuatifrons, Spin. Ann. Soc. Ent. France (1843), 2nd ser. i. 143, ♀.

Xylocopa Cantabrica, Gerst. Stett. Ent. Zeit. (1872), p. 280, ♂, ♀.

Female.—Black and shining; head not quite so wide as the thorax, closely punctured; the thorax more distantly so, the disk smooth; the pubescence on the head and thorax griseous; on the tibiæ, tarsi and apex of the abdomen the pubescence is fulvous; wings flavo-hyaline, with a fuscous cloud at their apical margins. The male resembles the female, but is more pubescent. Length 8 lines.

Hab.—North of Spain.

(— 5. *Xylocopa valga*.

Xylocopa valga, Gerst. Stett. Ent. Zeit. (1872), p. 276, ♀, ♂.

Closely resembles *X. violacea*, being black and having dark-violet wings; the female is distinguished from that species by having the third joint of the antennæ shorter, a little stouter, and only equal in length to the two following joints united; *X. violacea* ♀ has the third joint as long as the three following united; the head is proportionably narrower than in *X. violacea*, and less swollen behind the eyes. The male I have not seen, but it is at once known from that of *X. violacea* by its unicolorous antennæ, the two penultimate joints being reddish-yellow in *X. violacea*; the latter species has the posterior coxæ mucronate at the apex, the tibiæ arcuate and appendiculate at the apex; in *X. valga* the apex is simple. Dr. Gerstäcker has pointed out all the distinctive characters of the sexes.

Hab.—Bozen (Switzerland?); Crimea; Trieste; Syria (Mount Hermon).

6. *Xylocopa lanata*.

Xylocopa lanata, Smith, Cat. Hym. Ins., Apidæ, ii. 345, ♂.

The male only known; the thorax black, abdomen nigro-piceous, the legs ferruginous, as well as the antennæ; the clypeus white; the head and thorax densely clothed with a whitish woolly pubescence; on the thorax above faintly tinged with fulvous; that on the legs and apex of the abdomen is bright fulvous; the base of the abdomen, and the apical margins of the segments, fringed with pale pubescence; wings hyaline, with a faint yellow tint, the nervures ferruginous. Length 6 lines.

Hab.—Turkey in Europe.

SPECIES OF AFRICA.

7. *Xylocopa capensis*.

Xylocopa capensis, St. Farg. Hym. ii. 179, ♂, ♀; Smith, Cat. Hym. Ins., Apidæ, ii. 348, ♂.

Xylocopa capitata, Smith, Cat. Hym. Ins., Apidæ, ii. 348, ♀.

The female is entirely black, the head very large, nearly as wide as the thorax, closely and finely punctured; the thorax and abdomen smooth, shining, and with distant delicate punctures; wings brown-black, with bright violet iridescence; the basal joint of the anterior tarsi more or less clothed with fulvous pubescence beneath.

The male has the face, as high as the insertion of the antennæ, yellow; the abdomen with a tuft of white pubescence at the sides of the base; the posterior coxæ and femora much dilated, the latter having the posterior margin compressed and tuberculate in the middle, the first joint of the posterior tarsi swollen at the base; wings dark brown-black, with a violet iridescence. Length of the female 12—14 lines; of the male 13½ lines.

Hab.—Cape of Good Hope.

8. *Xylocopa flavo-rufa*.

Xylocopa flavo-rufa, De Geer, Mem. vii. 605, pl. 45, f. 1, ♀; Oliv. Encycl. Méth. iv. 63; St. Farg. Hym. ii. 177, ♂, ♀; Smith, Cat. Hym. Ins., Apidæ, ii. 350; Gerst. Peter's Reise Mossamb. 444.

Xylocopa trepida, Fabr. Syst. Piez. 340.

A large species readily distinguished; both sexes are black, with the thorax above, and the tip of the abdomen, fulvo-rufous; the wings dark-brown, and with a green and violet iridescence. Length eleven to thirteen lines.

Hab.—Guinea; Cape of Good Hope; Knysna; Natal; Angola.

9. *Xylocopa combusta*.

Xylocopa combusta, Smith, Cat. Hym. Ins., Apidæ, ii. 350, ♂, ♀.

A common large black species, the female readily known by having a little bright ferruginous pubescence at the extreme apex of the abdomen. The male has the clypeus, two minute spots on the labrum, and the scape of the antennæ in front, yellowish-white; the flagellum fulvous beyond the basal joint; the anterior legs with the lower margin more or less ferruginous, also the tibiæ beneath; the anterior coxæ with a tuft of ferruginous pubescence between them; the anterior and intermediate tarsi fringed with fulvo-ferruginous pubescence, the basal joint of the intermediate pair fringed with black behind at their base; the apical joints of all the tarsi rufo-testaceous; the wings in both sexes blackish-brown, with green and purple iridescence. Length one inch.

Hab.—Congo; Sierra Leone; Angola; Fernando Po.

10. *Xylocopa modesta*.

Xylocopa modesta, Smith, Cat. Hym. Ins., Apidæ, ii. 352, ♀.

This small species has the thorax and basal segment of the abdomen clothed with yellow pubescence; the extreme tip of the abdomen has a little ferruginous pubescence; the wings dark fuscous beyond the second submarginal cell, the basal portion being subhyaline; the wings have a purple iridescence. Length of the female six and a half lines.

The male resembles the female, but has the face clothed with cinereous pubescence, and the legs are rufo-piceous beneath.

Hab.—The Gambia.

*11. *Xylocopa oblonga*.

Female.—Black, oblong, thorax and abdomen shining; the head semi-opaque and closely punctured; the carina in front of the ocelli forming a slight tubercle between the antennæ; the flagellum of the latter testaceous beneath, excepting the two basal joints. Thorax finely punctured above; the disk of the mesothorax impunctate; the pubescence on the sides and legs black; that on the anterior tarsi obscure ferruginous beneath; wings brown-black, with a rich purple iridescence, tinted with green at the apical portion of the anterior pair; metathorax rounded. Abdomen finely and distantly punctured, the sides fringed with long black pubescence. Length fifteen lines; expanse of the wings two inches and a half.

Male.—Of the same oblong form as the female; the clypeus, except its anterior margin, the sides of the face as high as the anterior ocellus, and a ring which surrounds them, white; antennæ black. Thorax: a little griseous pubescence in front, a little beneath the wings, and a tuft at the base of the posterior coxæ; the posterior femora incrassate, their hinder margin thin and sinuated, with a minute tubercle at the base; the legs elongated. Length twelve and a half lines; expanse of the wings two inches and a quarter.

Hab.—Cape of Good Hope.

12. *Xylocopa rufitarsis*.

Xylocopa rufitarsis, St. Farg. Hym. ii. 191, ♂; Smith, Cat. Hym. Ins., Apidæ, ii. 346.

This small species is readily distinguished as regards the male sex, which is black; the vertex has a little griseous pubescence; the thorax is clothed above with similar pubescence; the abdomen has a little on the basal margin of the abdomen, and the three following segments have a little on the apical margins laterally; its length is seven lines; the wings are fusco-hyaline. The female is totally black, evenly and rather finely punctured; wings as in the male; length seven to eight lines.

Hab.—Cape of Good Hope.

—13. *Xylocopa hottentotta*.

Xylocopa hottentotta, Smith, Cat. Hym. Ins., Apidæ, ii. 349, ♀.

Female.—Length 8—9½ lines. Black, the wings brown-

black, with a bright steely-blue iridescence. The head closely punctured; the flagellum of the antennæ nigropiceous beneath; more or less so in different examples. Thorax shining above; punctured; the disk smooth, nearly impunctate, having only a few fine scattered punctures; the metathorax rounded. Abdomen of the same width as the thorax, not very closely punctured, most sparingly so down the middle.

Male.—Length 8—9½ lines. Very closely resembling the female, but with the antennæ usually entirely nigropiceous beneath, in some of the larger examples very obscurely so; varying greatly in this respect. The clypeus with silvery-white pubescence, and the anterior margin of the thorax with similar pubescence, more or less bright; in different examples there is sometimes a little white pubescence on each side of the basal margin of the abdomen; the sixth and seventh segments are fringed with black pubescence on the apical segment, forming lateral tufts. In some examples there is a little whitish pubescence on the sides of the thorax beneath the wings.

This species is about the same size and is most closely allied to *X. rufitarsis*, but the male is at once distinguished by the colour of the hair that clothes the tarsi; the female of *rufitarsis* has paler wings, and they have a violet iridescence.

A series of ten females, together with twelve females, obligingly sent by Sir Sidney Smith Saunders, have enabled me to indicate the range of variation in this species; they are from Aden.

Hab.—Sierra Leone; Angola; Natal; Aden.

—14. *Xylocopa lateritia*.

Xylocopa lateritia, Smith, Cat. Hym. Ins., Apidæ, ii. 346, ♀; Gerst. Reis. Mossamb. (Peter's), 444, Taf. xxix., fig. 1 ♂, 2 ♀; and Reis. in Ost-Afrika, Von der Dek. 315.

Female.—Black, with the thorax and basal segment of the abdomen clothed with short brick-red pubescence; a tubercle in front of the anterior ocellus; the flagellum of the antennæ pale beneath; wings dark-brown and with a violet iridescence.

Male.—The head, thorax above and at the sides, the

anterior tibiæ, and base of the abdomen, densely clothed with fulvous pubescence; the rest of the abdomen with a greenish-yellow pubescence, its apical margin with a fringe of black pubescence.

Hab.—Isle of Johanna, Mozambique.

15. *Xylocopa africana*.

Apis africana, Fabr. Ent. Syst. ii. 319, ♂.

Bombus africanus, Fabr. Syst. Piez. 346.

Xylocopa africana, St. Farg. Hym. ii. 198; Smith, Cat. Hym. Ins., Apidæ, ii. 346, ♂.

Xylocopa varipes, Smith, Cat. Hym. Ins., Apidæ, ii. 351, ♀.

The sexes were sent to the Museum as constituting one species from Fernando Po; the female has the pubescence on the head, thorax, basal segment of the abdomen, the fringe of the apical segment, the anterior and intermediate legs, and the posterior tibiæ, clothed with ochraceous pubescence; that on the thorax, in very fine examples, is somewhat fulvous; wings dark-brown and with a purple iridescence. The male has the pubescence on the vertex black, intermixed with luteous, that on the clypeus and cheeks whitish; the pubescence on the thorax in front, and on the legs, black; on the basal segment of the abdomen, and on the thorax posteriorly, it is bright yellow, the yellow portion being of an angular shape in front of the insertion of the wings; the wings subhyaline, their margins broadly adorned with coppery iridescence. The abdomen with olive pubescence.

Length of the female 9—10 lines; of the male 7—9 lines.

Hab.—W. Africa; Fernando Po; Angola.

16. *Xylocopa caffra*.

Apis caffra, Linn. Syst. Nat. i. 959, ♀; Fabr. Ent. Syst. ii. 319, ♀.

Bombus caffrus, Fabr. Syst. Piez. 346.

Xylocopa caffra, St. Farg. Hym. ii. 197, ♂, ♀; Klug, Illig. Mag. vi. 209; Smith, Cat. Hym. Ins., Apidæ, ii. 346; Gerst. Insekt. Reise Mossamb. p. 444; Gerst. Von der Deck. Reise in Ost-Africka, iii. pl. 2, Wissensch. Theil. 315.

The female is black, with the posterior portion of the thorax and the basal portion of the abdomen yellow; the wings brownish-black with a purple iridescence. The pubescence of the male is olive-yellow; the antennæ yellow beneath, except one or two joints at the base of the flagellum; the mandibles have a minute yellow spot at their base and the anterior margin of the clypeus has a narrow yellow line, this is sometimes interrupted; the legs are pubescent, that on the underside being black; at the tip of the abdomen the pubescence is slightly fulvous, with more or less of black hairs at the sides. Length of female 10 lines; of the male 9 lines.

Hab.—Cape of Good Hope; Damara-Land; Congo.

17. *Xylocopa olivacea*.

Apis olivacea, Fabr. Ent. Syst. ii. 319, ♂.

Bombus olivaceus, Fabr. Syst. Piez. 347.

Xylocopa olivacea, Smith, Cat. Hym. Ins., Apidæ, ii. 349, ♂, ♀.

Xylocopa luteola, St. Farg. Hym. ii. 198, ♂.

The male resembles that of *X. caffra*, but is not so bright in colour, being olive, the antennæ pale beneath, with a longitudinal pale line on the clypeus, the anterior margin of the same and two spots on the labrum reddish-yellow; there is also a minute yellow spot at the base of the mandibles; the claw-joint of the tarsi ferruginous, and the pubescence on the intermediate and posterior tarsi black; the wings subhyaline, with a fuscous stain in the marginal cell, and a faint cloud at the apical margins; length seven lines. The female is black, with the thorax and basal segment of the abdomen clothed with bright yellow pubescence; the basal half of the wings subhyaline, the apical pair dark fuscous; the flagellum of the antennæ pale beneath; length eight lines.

Hab.—Sierra Leone; Angola.

18. *Xylocopa divisa*.

Xylocopa divisa, Klug, Mag. der Gesell. Nat. für zu Berlin, ♀; Smith, Cat. Hym. Ins., Apidæ, ii. 363.

The sexes of this small species were bred from the nest by Herr Gueinzus, at Natal; it is readily distinguished: the female is black, with the posterior half of the thorax

clothed with yellow pubescence; the wings are brown, palest at the base, and have a bright purple iridescence. The male resembles that of *X. africana*, but the thorax is uniformly bright yellow above and not bordered in front with black pubescence; it is, however, both on the sides and beneath, of a darker hue; its anterior and intermediate tarsi are fringed behind with long, fulvous pubescence, and the abdomen is uniformly yellowish, being darkest on the sides and down the centre.

Hab.—Natal; Abyssinia.

The female varies in having, in good examples, a little yellow pubescence at the base of the abdomen; it has also, in some instances, a griseous pubescence on the face.

— 19. *Xylocopa torrida*.

Mesotrichia torrida, Westw. Trans. Ent. Soc. Lond. ii. 113, ♂, pl. xi. f. 7, ♂ (1838).

Xylocopa crassa, St. Farg. Hym. ii. 204, ♀ (1841).

Xylocopa torrida, Smith, Cat. Hym. Ins., Apidæ, ii. 349, ♂.

There is little or no doubt of the sexes being correctly united; in 1851 four males and three females were received from Fernando Po, no other *Xylocopa* accompanying them; since that time they have been received in collections from other localities; Dr. Welwitsch took the sexes plentifully in Angola. The male is black, with the head, the anterior half of the thorax, and the four anterior legs, clothed with bright rufo-fulvous pubescence; the intermediate legs elongated, the femora with a long tooth at their base beneath, the first joint of the tarsi being fringed with long pale hair on both sides, the claw-joint is also fringed; the clypeus and scape of the antennæ in front is yellowish-white, the flagellum being fulvous beneath. Length twelve to thirteen lines.

The female is totally black; the head is large, nearly as wide as the thorax in front; the face densely clothed with black pubescence; the head is closely punctured and opaque; thorax and abdomen broad, shining, and finely punctured, the disk of the thorax impunctate; abdomen rather flattened above and fringed at the sides with black pubescence; wings black-brown, with a violet and green iridescence; the basal joint of the anterior tarsus is covered beneath with ferruginous pubescence. Length one inch.

Hab.—Fernando Po; Angola.

20. *Xylocopa nigrita*.

Apis nigrita, Fabr. Ent. Syst. ii. 316, ♀.

Xylocopa nigrita, Fabr. Syst. Piez. 340; St. Farg. Hym. ii. 179; Gerst. Von der Deck. Reis. in Ost-Afrika, iii. pt. 2, Wissensch. Theil. 314.

Female.—The pubescence on the face, anterior legs, and sides of the abdomen white; on the other parts of the insect it is black.

Male.—Fulvo-ochraceous, with fulvous pubescence; the coxæ, pectus, base of the anterior and intermediate femora, as well as the posterior pair, black. Length of each sex about fourteen lines.

The sexes were bred by Herr Gucinzius of Natal, who forwarded the nest to the British Museum.

Hab.—Sierra Leone; Natal; Angola.

21. *Xylocopa calens*.

Xylocopa calens, St. Farg. Hym. ii. 196, ♀.

The female is black, with the thorax above and the first segment of the abdomen bright citron-yellow. The male has the head, thorax, tibiae and tarsi clothed with yellow pubescence, that on the latter is long and has a ferruginous tinge; the tarsi ferruginous, the antennæ rufo-piceous, the scape yellow beneath, the flagellum fulvous, the anterior margin of the clypeus, and sometimes a line down its centre, more or less distinct, and a minute spot at the base of the mandibles, yellow; wings dark brown, with a violet iridescence. Abdomen: at the base the pubescence is yellow, beyond inclining to olive, and at the apex it is black; the apex of the posterior tibiae and first joint of the tarsi with black pubescence; the wings slightly fuscous, and with a violet iridescence; the nervures ferruginous. Length of the female nine lines; of the male eight.

Hab.—Madagascar.

*22. *Xylocopa cupripennis*.

Male.—Length 8 lines. Black; head much narrower than the thorax; the pubescence on the head, thorax, and base of the abdomen at the sides, griseous; the head and thorax closely punctured and shining; the abdomen with a blue tinge, particularly so at the base; the apical margins of the segments narrowly rufo-piceous; wings sub-

fuscous and with coppery iridescence, which in certain lights has purple tints.

Hab.—Algeria.

23. *Xylocopa femorata*.

Xylocopa grisescens, Smith, Cat. Hym. Ins., Apidæ, ii. 347, ♂ (nec St. Farg. Hym. ii. 178).

I had overlooked the species described by St. Fargeau when I gave the name *grisescens* to this insect; it is black and covered with griseous pubescence, that on the tarsi being pale fulvous; the posterior femora are much dilated; the wings fusco-hyaline, with a darker cloud beyond the inclosed cells; it is nine lines long. This is very probably the male of *X. cirtana*.

Hab.—Algeria.

24. *Xylocopa præusta*.

Xylocopa præusta, Smith, Cat. Hym. Ins., Apidæ, pt. ii. 347, ♂.

This species was marked female in my catalogue by an oversight; it is distinguished by having the head, thorax, legs and base of the abdomen densely clothed with short ochraceous pubescence, which has a golden lustre; the intermediate and posterior tarsi, as well as the apex of the abdomen, are clothed with bright fulvous; the scape in front and the clypeus yellow. Length ten lines.

Hab.—Africa.

25. *Xylocopa obscurata*.

Xylocopa obscurata, Smith, Cat. Hym. Ins., Apidæ, ii. 347, ♂.

This male is very distinct from all others which are known to me; it is nine lines long; its head and thorax are densely clothed with short fulvo-ferruginous pubescence, not bright, rather obscure; the same also covers the basal segment of the abdomen; on the other segments it is black, except that on the two apical ones, which is bright fulvous; the wings fuscous, with a slight purple iridescence.

Hab.—Africa.

26. *Xylocopa ustulata*.

Xylocopa ustulata, Smith, Cat. Hym. Ins., Apidæ, ii. 351, ♂.

This small species is black, with the mandibles and antennæ ferruginous, the latter more or less fuscous above. The anterior legs ferruginous beneath; the intermediate and posterior femora and tibiæ more or less so at their apex. The face, thorax anteriorly, and basal margin of the abdomen, with griseous pubescence; there is also, usually, a little on the sides of the thorax beneath; the wings dark brown, with a violet iridescence; the disk of the thorax shining, smooth, and having a few distant punctures; abdomen shining, sparingly punctured in the middle, more closely so at the sides; the apex fringed with black pubescence. Length $7\frac{1}{2}$ lines.

Hab.—The Gambia.

27. *Xylocopa producta*.

Male.—Length $9\frac{1}{2}$ lines. Black, with black pubescence; that on the front of the thorax above, and that on each side of the basal segment of the abdomen above, griseous; the clypeus and face, as high as the insertion of the antennæ, yellowish-white; the underside of the flagellum fulvous. Thorax and abdomen rather closely punctured, the disk of the former impunctate; the posterior femora incrassate, and with a subtriangular flattened projecting process behind; wings brown, not very dark, palest towards the base, and with a purple iridescence.

Hab.—Angola.

This is probably the male of *X. carinata*.

*28. *Xylocopa flavilabris*.

Male.—Length 8 lines. Black, with black pubescence, that on the thorax above, and on the first segment of the abdomen, bright rufo-fulvous; on the apex of the posterior tibiæ and on the tarsi it is bright ferruginous; the clypeus and face, as high as the insertion of the antennæ, yellow; wings dark brown, with a purple iridescence; the posterior femora incrassate, and having beneath a sharp angular tubercle.

Hab.—Cape of Good Hope.

29. *Xylocopa albifrons*.

Xylocopa albifrons, St. Farg. Hym. ii. 191, ♂.

A male; black, with the clypeus, the inner orbits of the eyes, and a spot beneath the antennæ, white; the pubescence on the thorax and the first segment of the abdomen obscure reddish-brown; the four posterior tarsi have rufous pubescence; wings fuscous, with a violet iridescence.

Hab.—Cape of Good Hope.

A species I have not seen, and one of those of which St. Fargeau has not given the size.

30. *Xylocopa angolensis*.

Female.—Black; head closely punctured, a minute tubercle between the antennæ; the disk of the thorax shining, less closely punctured than the head, and with a small impunctate space in the middle; wings subhyaline, clouded towards their apical margins; the anterior legs with black pubescence, the intermediate and posterior tibiæ and tarsi with bright fulvous pubescence; the apical joints of all the tarsi rufo-piceous. Abdomen shining, fringed at the sides with cinereous pubescence, the apical segment with black, and with a few ferruginous hairs at the extreme apex.

Hab.—Angola.

31. *Xylocopa inconstans*.

Female.—Length 12 lines. Black; the vertex and cheeks shining and with distant fine punctures; the face and clypeus strongly punctured. Thorax: the mesothorax smooth and shining on the disk, the lateral margins closely punctured; a band of white pubescence behind the insertion of the wings, crossing the scutellum, also a line beneath the wings; the first segment of the abdomen with white pubescence; wings very dark brown with a green and purple iridescence. Abdomen finely and distantly punctured. Length a little over an inch.

This species varies both in size and colouring. I have seen specimens from South Africa, sent by Dr. Livingstone, only ten lines long; the snow-white bands on the thorax and abdomen are sometimes bright yellow; the head is very large, as wide as the abdomen.

Hab.—South Africa, Lake Ngami.

32. *Xylocopa tarsata*.

Xylocopa tarsata, Smith, Cat. Hym. Ins., Apidæ, ii. 348 ♀.

Black; head closely punctured and with a short carina between the antennæ; the metathorax rounded behind; wings dark brown, with a purple and violet iridescence; the apex of the posterior tibiæ and the tarsi clothed with bright fulvous pubescence; abdomen fringed with black pubescence. Length 7 lines.

Hab.—Cape of Good Hope.

33. *Xylocopa carinata*.

Female.—Length 9 lines. Black; the head closely punctured and semi-opaque; an elevated shining carina runs from the anterior ocellus to the insertion of the antennæ, where it terminates in a slight tubercle. The thorax and abdomen shining and punctured, not very closely, and sparingly so on the disk of the former; the abdomen fringed with black pubescence at the sides; wings dark brown-black, with a bright purple iridescence intermixed with shades of green; the flagellum of the antennæ, except the two basal joints, ochraceous beneath.

This is the *X. frontalis* of Ferret and Galinier (Voy. en Abyssinie), but not of Olivier and Fabricius; I have therefore changed the name.

Hab.—Angola; Abyssinia.

34. *Xylocopa albiceps*.

Xylocopa albiceps, Fabr. Syst. Piez. 341, ♀; St. Farg. Hym. ii. 189; Smith, Cat. Hym. Ins., Apidæ, ii. 349.

This small species is readily distinguished; it has been hitherto described as having the antennæ entirely black, but the flagellum is pale beneath; the wings are very dark towards their apex, but are usually paler towards their base, and have a violet iridescence. Length 6 to 7 lines.

Hab.—Guinea; Sierra Leone; Congo.

35. *Xylocopa apicalis*.

Xylocopa apicalis, Smith, Cat. Hym. Ins., Apidæ, ii. 349, ♀.

This insect is coloured the same as *X. olivacea*, but it differs as follows: it is larger, the head proportionately

larger; the face densely covered with black pubescence, and the wings entirely dark brown, with a coppery and violet iridescence; its size is 10 lines.

Hab.—Sierra Leone; the Gambia.

36. *Xylocopa imitator*.

Xylocopa imitator, Smith, Cat. Hym. Ins., Apidæ, ii. 351, ♀.

This species is very like *X. albiceps*, but it is uniformly larger, its wings are entirely dark brown, with a rich purple iridescence, and at the extreme tip of the abdomen it has some bright ferruginous pubescence; its length is eight and a half to nine and a half lines.

Hab.—Sierra Leone; Congo; Gold Coast.

37. *Xylocopa lugubris*.

Xylocopa lugubris, Gerst. Peter's Reise Mossamb. 445; Taf. xxix. f. 4, ♀.

This is a small species, six lines long; it is black, with the thorax clothed above with griseous pubescence, as is also the abdomen laterally; the tarsi fuscous, the posterior pair white at the base; the wings fuscous, with a violet iridescence.

Hab.—Mozambique.

38. *Xylocopa cirtana*.

Xylocopa cirtana, Lucas, Explo. Sc. Algér. iii. 167, Atlas, pl. 4, fig. 10, ♀; Smith, Cat. Hym. Ins., Apidæ, ii. 347.

This species is clothed with a greenish-fulvous pubescence, the tibiæ and tarsi with fulvous-red pubescence; the wings slightly fuscous. One inch in length.

Hab.—Algeria.

39. *Xylocopa Amedæi*.

Xylocopa Amedæi, St. Farg. Hym. ii. 188, ♀; Lucas, Explo. Sc. Algér. iii. 167, pl. 4, fig. 9; Smith, Cat. Hym. Ins., Apidæ, ii. 348.

This species is black, with black pubescence; the tibiæ and first joint of the tarsi with ferruginous pubescence. Length twelve and a half lines.

Hab.—Algeria.

SPECIES OF ASIA, THE ISLANDS OF THE MALAY
ARCHIPELAGÓ, AND OF AUSTRALIA.40. *Xylocopa latipes*.

— *Apis latipes*, Drury, Illus. Exot. Ins. ii. 98, pl. 48, fig. 2, ♂; Fabr. Ent. Syst. ii. 314.

Xylocopa latipes, Fabr. Syst. Piez. 337; St. Farg. Hym. ii. 203, ♂, ♀; Smith, Cat. Hym. Ins., Apidæ, ii. 353; Journ. Proc. Lin. Soc. ii. 47.

Platynopoda latipes, Westw. Nat. Libr. Entom. vi. 271, pl. 23, fig. 1, ♂.

Apis gigas, De Geer, Mém. iii. 576, pl. 28, fig. 15; Christ. Hym. tab. 4, fig. 1, 2 ♀, 3 ♂.

I think it very probable that the *X. marginella* of St. Fargeau is a variety of the female of *tenuiscapa*, having a little ferruginous pubescence at the base of the posterior tarsi. *X. latipes* and *X. tenuiscapa* are two of the largest species of the genus, and the sexes of each resemble each other; they are black, and the males of each have their anterior tarsi dilated, yellow, flattened, and fringed with a mixture of long yellow and black pubescence; the male of *X. latipes* sometimes has the clypeus and a spot at the base of the mandibles yellow; other examples have the clypeus only partly yellow; in others it is entirely black. Both species have the eyes of the males large and approximating; *X. latipes* is known by its antennæ having the scape dilated at the apex into a battledore shape, its base being very much attenuated. The antenna of *X. tenuiscapa*, male, has not a dilated scape, it is simply slightly thickened from the base to the apex. The females are not so readily separated: both have the abdomen somewhat flattened and rather finely punctured, and fringed at the sides with curled, black pubescence; the colour of the wings appears to be a good specific character. The wings of *X. tenuiscapa* are brown-black, with very vivid iridescence; at their base they are purple, in the middle with bright tints of green and gold; these occasionally extend to their base; towards their apex is a mixture of purple and golden lustre. The wings of *X. latipes* are less vividly adorned; they are equally dark, have a purple or violet iridescence, and are more or less tinged with green towards their apex. The third submarginal cell and third discoidal cell are longer in *X. latipes* than in *X. tenuiscapa*.

Hab.—India; China; Java; Malacca; Singapore; Sumatra; Borneo; Philippines.

41. *Xylocopa tenuiscapa*.

Platynopoda tenuiscapa, Westw. Nat. Libr. (Jardine's)
Entom. vi. 27, pl. 23, fig.
2, ♂.

Audinetia Latreillii, St. Farg. Hym. ii. 206, ♂, ♀.

Xylocopa tenuiscapa, Smith, Cat. Hym. Ins., Apidæ, ii.
353.

Xylocopa viridipennis, St. Farg. Hym. ii. 205, ♀, var.?

Hab.—India ; Java ; Ceylon ; Penang ; Philippines.

42. *Xylocopa albo-fasciata*.

Xylocopa albo-fasciata, Sichel, Reise der Novara,
Hym. Foss. et Mellif.
154, ♀.

Hab.—Ceylon.

This is a large species, over one inch and a quarter in length ; it is black and punctured ; the antennæ fuscous beneath ; the mandibles bidentate ; the clypeus with a slight carina ; the pubescence black on the head and thorax ; the latter with strong, but distant punctures ; the metathorax truncate. Abdomen strongly punctured, the base truncate ; the marginal fimbria black ; the basal margins of the segments with narrow white fasciæ of downy pile ; the wings fusco-hyaline.

43. *Xylocopa dissimilis*.

Xylocopa dissimilis, St. Farg. Hym. ii. 180, ♂, ♀ ;
Smith, Cat. Hym. Ins., Apidæ,
ii. 356.

A large black species of an oblong, narrow form ; the thorax rounded behind ; head semi-opaque and closely punctured ; thorax and abdomen shining ; the disk of the metathorax impunctate ; abdomen finely and distantly punctured ; wings black-brown, with violet, purple, and, towards the apex, golden iridescence. The male is known by its having the clypeus and sides of the face yellowish-white, and by the anterior ocellus having a white lunule on each side ; the posterior femora are very much enlarged, and have a blunt tooth or tubercle at their base ; the coxæ are tuberculate at the apex ; the thorax has a band of whitish pubescence in front and a patch of the same colour beneath the wings.

Hab.—India ; Burmah ; Philippine Islands ; China.

44. *Xylocopa fenestrata*.

Apis fenestrata, Fabr. Ent. Syst. Supp. 273, ♂.

Xylocopa fenestrata, Fabr. Syst. Piez. 339; St. Farg.
Hym. ii. 184, ♂ (nec ♀).

Xylocopa indica, Klug, Mag. der Gesell. Nat. für zu
Berlin (1807), var. ?

Male.—Black, punctured; the punctures fine and distant on the mesothorax, scutellum, and down the middle of the abdomen; the sides more strongly and closely punctured; the wings hyaline at their base; more or less so in different examples; beyond brown-black, with a violet iridescence. Female.—Shining black, finely and not very closely punctured; disk of the metathorax impunctate. The head as wide as the thorax; the face rather strongly and very closely punctured; the frontal tubercle prominent, and the lateral margins of the clypeus slightly elevated; the flagellum of the antennæ, except the three basal joints, testaceous beneath; the wings dark brown-black, with a bright violet iridescence towards their base, changing to an æneous tint at their apical margins. The lateral margins of the abdomen towards its apex fringed with black pubescence, the fringe at the apex is tipped with ferruginous. (See note below description of *X. indicá*.)

Length of each sex ten lines.

I received the sexes of this species from Calcutta, where it was taken by Mr. G. A. James Rothney; the female described by St. Fargeau, has nothing to do with this species.

Hab.—India; Celebes.

☞ — *45. *Xylocopa cærulea*.

Bombus cæruleus, Fabr. Syst. Piez. 345, ♀.

Xylocopa cærulea, St. Farg. Hym. ii. 200; Smith,
Cat. Hym. Ins., Apidæ, ii. 357.

Known immediately by the blue pubescence that clothes the head, thorax, and basal segment of the abdomen; a male from Java has the face covered with dirty-white pubescence, the rest of the head and thorax with blue; but this coloured pubescence does not extend to the abdomen, which has sooty-black pubescence at its base; on the rest of the abdomen and legs it is black. A small example from China, a female, has the eyes more approximating, and the wings are fusco-hyaline, darkest beyond

the middle ; it may prove to be a distinct species. Length nine to eleven lines ; of the specimen from China, six and a quarter. In this species the second submarginal cell is frequently wanting.

Hab.—New Caledonia ; China ; India ; Java ; Singapore ; Celebes ; New Guinea.

— 46. *Xylocopa collaris*.

Xylocopa collaris, St. Farg. Hym. ii. 189, ♀ ; Smith, Cat. Hym. Ins., Apidæ, ii. 353 ; Journ. Linn. Soc. iv. 8.

Xylocopa Dejeanii, St. Farg. Hym. ii. 209, ♂ ; Smith, Cat. Hym. Ins., Apidæ, ii. 357 ; Journ. Linn. Soc. iv. 8.

The sexes were forwarded from Siam by M. Mouhot ; the female has the head, thorax in front and at the sides clothed with white pubescence ; the abdomen is black with a blue tinge, the wings fuscous, with a violet iridescence. The male has the face as high as the insertion of the antennæ, and the sides, a little above their insertion, white ; the pubescence on the cheeks, thorax above and at the sides, and also the two basal segments of the abdomen, the anterior legs, intermediate tarsi, and posterior tibiæ outside, clothed with griseous pubescence ; that on the disk of the thorax usually has a slight fulvous tint ; wings fusco-hyaline, with a coppery iridescence.

Hab.—Java ; India ; Sumatra ; Siam ; Borneo ; Celebes.

47. *Xylocopa auripennis*.

Xylocopa auripennis, St. Farg. Hym. ii. 181, ♂, ♀ ; Smith, Cat. Hym. Ins., Apidæ, ii. 356.

Both sexes are black, more oblong and narrow than the majority of the species ; the head closely punctured ; the disk of the mesothorax shining and impunctate ; abdomen shining, not very closely punctured ; the pubescence black. The male has the posterior femora incrassate and subdentate ; the wings are splendidly iridescent ; purple at the base ; the anterior wings have a golden lustre towards their apex, and tints of green adorn them in certain lights ; length of the species ten to twelve lines.

Hab.—Calcutta ; China.

*48. *Xylocopa rufescens*.

Female.—Rufo-fuscous; the head and thorax in some examples inclining to black or dark-brown; the abdomen varying in depth of colour; the pubescence rufo-fulvous; that on the legs and at the apex of the abdomen being bright rufo-fulvous; the antennæ ferruginous, sometimes more or less fuscous above; the wings fulvo-hyaline, palest at their posterior margins, the nervures rufo-testaceous, the tegulæ of a deeper tint of the same colour; some specimens have more or less of a narrow pale fulvous fringe on the apical margins of the segments of the abdomen, these are only observable in very fine specimens; the fourth, fifth and sixth segments have a marginal fringe of long rufo-fulvous pubescence. The male closely resembles the female, but the legs are more elongate, and the pubescence, in the only example I have seen, is of a paler colour, particularly that which clothes the thorax above. Length of both sexes $12\frac{1}{2}$ —13 lines.

Hab.—India; Java.

49. *Xylocopa basalis*.

Xylocopa basalis, Smith, Cat. Hym. Ins., Apidæ, ii. 355, ♂, ♀.

The sexes are similarly coloured; they are black, with dark-brown wings having a purple iridescence; the base of the wings, to about one-third of their length, clear hyaline. Length six and a half to eight lines.

Hab.—Northern India.

50. *Xylocopa perversa*.

Xylocopa perversa, Wied. Analec. Entom. ex Museo Hafniæ maxime congesta (1824), Bull. des Scienc. Nat. Géolo. tom. x. p. 421, ♂; Ritsema, Tijdschr. Entom. xvi. (1873), pl. 10, fig. 1 ♂, 2 ♀.

Xylocopa mesoxantha, St. Farg. Hym. ii. 199, ♀, nec ♂; Smith, Cat. Hym. Ins., Apidæ, ii. 357.

Female.—Black, with the two basal segments of the abdomen clothed with bright-yellow pubescence; wings fusco-hyaline, with a coppery iridescence. The male is black, with black pubescence; the thorax and abdomen with two longitudinal yellow pubescent lines, which ex-

tend to the apex of the abdomen. Length of the female six and a half lines; of the male six lines.

Hab.—Java.

51. *Xylocopa perforator*.

Xylocopa perforator, Smith, Journ. Proc. Linn. Soc. vi. 61, ♂, ♀.

Allied to *X. latipes* and *X. tenuiscapa*, most so to the latter species; the females present no striking specific difference; the species was established upon the differences observable in the males; the anterior tarsi are dilated as in *X. tenuiscapa*, but they are fringed with black pubescence, and the second, third and fourth joints of the tarsi are of equal length. I have only seen three males; they agree in these particulars, but may possibly prove to be a variety of *X. tenuiscapa*. Length of female fourteen lines; of the male twelve.

Hab.—Ternate.

52. *Xylocopa appendiculata*.

Xylocopa appendiculata, Smith, Trans. Ent. Soc. Lond. New Ser. ii. 41, ♀, ♂ (1852).

The female is black; the thorax above and at the sides with bright yellow pubescence; on the face and thorax beneath it is sooty-black; there is also a little yellow on the hinder margin of the vertex; the abdomen shining, and covered with shallow punctures; the sides and apex fringed with black pubescence. The male is similarly coloured; it differs in having the yellow pubescence continued on to the basal segment of the abdomen; the clypeus or spot at the base of the mandibles, the scape of the antennæ in front, and the flagellum beyond the second joint beneath, yellowish-white; the eyes are large and approximating; the anterior and intermediate tarsi with rufo-fulvous pubescence; the posterior tibiæ have at their apex a projecting somewhat quadrate appendage; the wings in both sexes are fuscous, not dark, and have a purple and coppery iridescence. Length nine to ten lines.

Hab.—Ning-po-foo (China).

This species closely resembles *X. circumvolans* of Japan, of which it may be a variety; it differs from it in having pale pubescence on its tarsi, and in not having any yellow pubescence on the abdomen.

C — 53. *Xylocopa circumvolans*.

Xylocopa circumvolans, Smith, Trans. Ent. Soc. Lond. (1873), 205, ♂, ♀.

Female black; the pubescence black; that on the thorax above only being fulvous-yellow; wings dark brown, palest towards the base, and with a blue and violet iridescence in certain lights; abdomen shining and rather finely punctured; head more strongly punctured, closely so only on the face, which has a thin covering of sooty-black pubescence. The male is of the same colour as the female, but the wings are of a lighter colour; the clypeus, scape of the antennæ, and a minute spot at the base of the mandibles, yellowish-white. Length of the female ten and a half lines; that of the male the same.

Hab.—Hiogo (Japan).

C — 54. *Xylocopa æstuans*.

Apis æstuans, Linn. Syst. Nat. i. 961, ♀; Fabr. Ent. Syst. ii. 323.

Apis leucothorax, De Geer, Mém. iii. 573, pl. 28, f. 7.

Bombus æstuans, Fabr. Syst. Piez. 351.

Xylocopa æstuans, St. Farg. Hym. ii. 193, ♂, ♀; Smith, Cat. Hym. Ins., Apidæ, ii. 353.

Xylocopa verticalis, Smith, Journ. Linn. Soc. ii. 48, ♂, nec St. Farg.

The female is black, the pubescence black, except that on the thorax above, which is yellow, and does not extend beneath the wings; the wings black-brown, with bright purple iridescence at the basal portion, beyond which it has a greenish tinge. The male is clothed with yellow pubescence; on the abdomen it has a greenish or olivaceous tinge; on the legs it is greenish-yellow, on the intermediate and posterior tarsi it is black, with a mixture of yellow outside; the abdomen has some black pubescence at the sides towards the apex; the wings fusco-hyaline, darkest in the marginal cell, with a purple iridescence in certain lights. Female, length eight to ten lines; of the male eight to nine lines.

Hab.—India; China; Borneo; Java; Bali Island; Sumatra; Celebes; Aru; Timor; Palestine; Aden.

55. *Xylocopa verticalis*.

Xylocopa verticalis, St. Farg. Hym. ii. 195, ♀, ♂

The female has much general resemblance to *X. æstuans*, but the yellow on the thorax extends down the sides, beneath the wings, and the posterior margin of the vertex is fringed with yellow hairs; there is also a little on the cheeks. The male I have not seen, but it is described as having the labrum, the margin of the clypeus, and a spot at the base of the clypeus, testaceous; the thorax and abdomen clothed with olive-yellow pubescence; beneath, mixed with black; the legs with reddish-yellow pubescence. Length of the female twelve lines; the male rather shorter.

Hab.—India.

56. *Xylocopa unicolor*.

Xylocopa unicolor, Smith, Journ. Proc. Linn. Soc. Zool. v. 135, ♂, ♀.

The female is totally black, except the underside of the antennæ beyond the third joint, which is pale fulvous; the metathorax is sharply truncate; the sides of the thorax, above, are densely clothed with short black pubescence, the disk smooth and shining; the wings dark brown, with a purple iridescence. The male is clothed with yellowish-olive pubescence, darkest on the abdomen, the sides towards the apex are fringed with black; the tibiæ and tarsi have a fulvous pubescence; the posterior tibiæ yellow outside; the antennæ in front, and the clypeus yellow, with two black spots at the base; wings fulvo-hyaline and iridescent. Length of the female nine lines; that of the male eight.

Hab.—Amboyna; Ceram; Bouru.

This species is remarkable in always, apparently, having the second submarginal cell obsolete; it has been received from three localities. I have examined two males and ten females.

57. *Xylocopa provida*.

Xylocopa provida, Smith, Journ. Proc. Linn. Soc. vii. 48, ♂, ♀.

The female is black, has griseous pubescence on the face, and the thorax is covered posteriorly with bright

yellow pubescence; the wings fusco-hyaline. Length eight and a half lines.

The male clothed with reddish-yellow pubescence; the anterior legs elongate, the tarsi with a long pale fringe behind; the posterior legs with black pubescence within; wings subhyaline, with a bright coppery iridescence. Length ten lines.

Hab.—Mysol; Waigiou; N. India.

58. *Xylocopa pictifrons*.

Xylocopa pictifrons, Smith, Trans. Ent. Soc. Lond.,
New Ser. ii. 42, ♂, ♀ (1852).

The female is black, clothed with black pubescence, and shining; the head closely punctured; the thorax more finely and sparingly so, and rounded behind; wings fusco-hyaline towards the base, darker beyond the enclosed cells, and also in the marginal and submarginal cells; with a golden iridescence towards the base, and purplish towards the apex. The male is clothed with fulvous-yellow pubescence, and has a longitudinal, obscure, darkish line on the thorax and abdomen; on the face a line of black pubescence; a broad yellow stripe on each side of the face, which extends to the hinder margin of the vertex. Length of the female, which is narrower than the species of the genus usually are, ten lines; of the male nine lines.

Hab.—North China; Java.

59. *Xylocopa bryorum*.

Apis bryorum, Fabr. Ent. Syst. ii. 321, ♂.

Bombus bryorum, Fabr. Syst. Piez. 348.

Xylocopa dimidiata, St. Farg. Hym. ii. 199, ♀.

This species very closely resembles *X. astuans*, in both sexes; the female differs in having the head clothed with cinereous pubescence, and the abdomen has sometimes, but rarely, a little yellow pubescence in the middle of the base, this is usually abraded; the wings are a degree lighter than in *X. astuans*, the male scarcely differs from it; it is usually rather larger than any specimens of *X. astuans* male, the posterior tibiae are more incrassate, and the pubescence on the tarsi is more ferruginous; the species is also a degree larger.

Hab.—Australia.

60. *Xylocopa indica*.

Xylocopa indica, Klug, Mag. der Gesell. Nat. für zu
Berlin, 264 (1807) (var. *X. fenestrata*?)

Black; the pubescence black; the wings violaceous, with some hyaline lines between the nervures at their base more or less observable. Length about ten lines.

Hab.—Tranquebar.

Klug does not indicate the sex of this species, but there can be little doubt of his description applying to a male; he indicates the difference between his species and the *X. fenestrata* to be the absence of a minute ovate impression at the basal, lateral margin of the third segment of the abdomen, which is covered with golden tomentum, or down; this minute spiracular impression is to be distinguished in many species, but appears to be most observable in *X. fenestrata*; in a series, however, of the latter, it will be found to be frequently denuded of the golden down, and such examples I believe must be referred to Klug's *X. indica*.

61. *Xylocopa lunata*.

Xylocopa lunata, Klug, Mag. der Gesell. Nat. für zu
Berlin (1807), 264, tab. vii. fig.
2, ♀.

Black, the pubescence black, the wings violaceous; the posterior pair with a large hyaline semi-lunate spot. Length nine and a half lines.

Hab.—Tranquebar.

*62. *Xylocopa ignita*.

Female.—One of the smallest species of the genus; it is black, the head semi-opaque, the thorax and abdomen shining; the head closely punctured; a sharp carina in front of the anterior ocellus; the thorax finely punctured, the mesothorax having a shining impunctate space on its disk; the metathorax rounded; the abdomen evenly and rather more strongly punctured. On the clypeus is a short pubescence consisting of a mixture of griseous and black; on the legs, sides of the thorax, and the fringe of the abdomen, it is black; at the extreme apex of the latter

there is a little ferruginous pubescence; wings dark brown, with vivid purple iridescence. Length six lines.

Hab.—Bombay; Canara; Tarancore.

63. *Xylocopa flavo-nigrescens*.

Xylocopa flavo-nigrescens, Smith, Cat. Hym. Ins.,
Apidæ, ii. 354, ♂.

This insect is unique in the British Museum; no second specimen has fallen under my notice. It is black; the front of the head, the thorax, and tegulæ of the wings, and also the base of the abdomen, are clothed with bright yellow pubescence; the anterior and intermediate tarsi have a long fringe behind, of the same colour; the rest of the abdomen has an olive pubescence, which deepens gradually into black at the apex of the abdomen; at the base of the fourth and fifth segments are narrow bands of bright yellow pubescence, and there is a little white in the middle of the base of the seventh; the legs have black pubescence; wings brown, with purple iridescence. Length 11 lines.

Hab.—Silhet.

64. *Xylocopa acutipennis*.

Xylocopa acutipennis, Smith, Cat. Hym. Ins., Apidæ, ii.
355, ♂.

This male is black; the clypeus, scape in front, and a minute spot at the base of the mandibles, yellow; the anterior tibiæ and tarsi thickly clothed above with pale fulvous pubescence, the intermediate and posterior tarsi fringed with ferruginous; the thorax has, anteriorly, a little pale-fulvous pubescence intermixed with the black; wings pale brown, with a purple iridescence; the head small, the eyes large, the apex of the abdomen with a tuft of long brownish-black pubescence; the wings pointed at their apex. Length 10 lines.

Hab.—Silhet.

*65. *Xylocopa pictipennis*.

Female.—Entirely black; head closely punctured and semi-opaque; thorax above finely punctured, with the disk impunctate and shining; abdomen punctured, the basal segment finely and distantly so; the middle of the apical margins narrowly impunctate; the sides fringed

with thick black pubescence; the thorax rounded behind; wings brown-black, with a splendid purple iridescence, and tinged with bright blue, and green tints, at their base. Length one inch.

Hab.—Java.

66. *Xylocopa phalothorax*.

Xylocopa phalothorax, St. Farg. Hym. ii. 194, ♀;
Smith, Cat. Hym. Ins.,
Apidæ, ii. 363.

This very distinct species is black, and its pubescence also black; that on the vertex of the head, on the thorax above, also down the sides of the thorax anteriorly, is white; wings brown, with a violet iridescence. Length 10 lines.

Hab.—Sumatra.

*67. *Xylocopa sonora*.

Female.—Black; head and thorax closely and moderately punctured; the mesothorax smooth, impunctate and shining on the disk; metathorax rounded behind; abdomen shining, rather finely punctured, most closely so at the sides above; the pubescence entirely black, except that on the anterior tarsi beneath, which is ferruginous; the claws of the tarsi ferruginous; wings fusco-hyaline, with a darker cloud beyond the enclosed cells, and adorned with a bright purple and coppery iridescence. Length ten to eleven lines.

Hab.—Sunda Islands.

68. *Xylocopa volatilis*.

Xylocopa volatilis, Smith, Journ. Proc. Linn. Soc. vi.
61, ♂.

Clothed with yellow pubescence; that on the abdomen has a greenish tinge; on the tarsi it is fulvous; on the margins of the abdomen and on the posterior tarsi it is ferruginous; wings fusco-hyaline, their apical margins beyond the enclosed cells darker, with a coppery and violet iridescence; the antennæ beneath, the anterior margin of the clypeus, and a line down its centre, as well as a spot at the base of the mandibles, reddish-yellow.

Hab.—Celebes (Menado).

69. *Xylocopa diversipes*.

Xylocopa diversipes, Smith, Journ. Proc. Linn. Soc.
vi. 61, ♂.

Black; the head, thorax, base of the abdomen, and the anterior and intermediate legs, clothed with fulvous pubescence; on the intermediate tarsi it is very long and rufo-fulvous; the abdomen fringed with black pubescence, that on the apical segment being ferruginous; the clypeus, the scape in front, and flagellum beneath, yellow; the wings subhyaline, the iridescence violet and purple, the nervures ferruginous. Length twelve lines.

Hab.—Celebes.

*70. *Xylocopa nigro-cærulea*.

Female.—The head, thorax, and legs, black; the abdomen obscure blue-black; the flagellum of the antennæ beneath, except the first and second joints, testaceous. The head strongly punctured; the thorax punctured and rounded behind; clothed anteriorly, at the sides and beneath, with black pubescence; the claw-joint of the tarsi rufo-piceous; wings brown, not dark, with bright coppery iridescence. Abdomen evenly and rather finely punctured; fringed towards the apex at the sides with black pubescence. Length ten lines.

Hab.—Celebes; Tondano.

71. *Xylocopa nobilis*.

Xylocopa nobilis, Smith, Journ. Proc. Linn. Soc. Zool.
iv. 8, ♀.

Black; the anterior and posterior margin of the thorax narrowly edged with bright yellow pubescence; the basal segment of the abdomen covered with the same; the three apical segments clothed with ferruginous pubescence, the second and third margined with the same; wings dark brown-black, with a bright effulgence of green and copper towards the base and of purple beyond the enclosed cells. Length eleven and a half lines.

Hab.—Celebes.

72. *Xylocopa coronata*.

Xylocopa coronata, Smith, Journ. Proc. Linn. Soc.
Zool. v. 135, ♀.

Black, and clothed with black pubescence; the disk of the thorax and the abdomen above smooth and shining;

the face has a mixture of yellow and griseous pubescence; that on the vertex and behind the eyes is short, dense, and of a bright yellow; wings dark brown, with a bright purple iridescence. Length nine and a half lines.

Hab.—Island of Kaisa (Eastern Archipelago).

73. *Xylocopa insularis*.

Xylocopa insularis, Smith, Journ. Proc. Linn. Soc. ii. 48, ♂.

Black; the head and thorax clothed with rufo-fulvous pubescence; the disk of the thorax smooth and shining; the eyes large and approximating at the vertex; the anterior wings pointed at their apex, brown, and having a coppery and violet iridescence. Abdomen shining and punctured; the basal and lateral margins with a thick fringe of black pubescence; the apical margins of the segments depressed and slightly rufo-piceous.

Hab.—Borneo.

74. *Xylocopa Philippinensis*.

Xylocopa Philippinensis, Smith, Cat. Hym. Ins., Apidæ, ii. 357, ♀.

Black; the pubescence black, except a little on each side of the thorax posteriorly, and that on the basal segment of the abdomen, which is yellow; wings brown, with a purple iridescence; the thorax truncate and sharply margined behind. Length one inch.

Hab.—Philippine Islands.

*75. *Xylocopa bombiformis*.

Female.—The thorax, legs, and sides of the abdomen, densely covered with black pubescence; that on the thorax is short, giving it a velvety texture; the metathorax truncate and sharply margined; the front of the head densely and strongly punctured; behind the eyes it is smooth, shining, and almost impunctate; the abdomen closely punctured; the basal segment covered with short, dense black pubescence; the entire abdomen has a thin, short pubescence; wings brown, not dark, and palest towards their base, and having a fine purple iridescence, tinged with green towards their apex. Length eleven to twelve lines.

Hab.—Philippines.

76. *Xylocopa rufipes*.

Xylocopa rufipes, Smith, Trans. Ent. Soc. Lond. New Ser. ii. 42, ♀; Cat. Hym. Ins., Apidæ, ii. 356.

This species is black, the thorax above and at the sides is clothed with ochraceous pubescence, there is also a little on the first and second segment of the abdomen; the intermediate and posterior tarsi are covered with bright rufous pubescence; the wings hyaline and clouded beyond the enclosed cells; beneath, the segments are fringed with ferruginous hairs; length nine lines.

Hab.—North China.

77. *Xylocopa simillima*.

Xylocopa simillima, Smith, Cat. Hym. Ins., Apidæ, ii. 357, ♀.

This species has the appearance of being a small race of the common *X. frontalis* of Brazil; both are black and have the three basal segments ferruginous, with their apical margins black; but the Australian bee has no frontal ridge before the two posterior ocelli, and it is only ten lines in length, whereas *X. frontalis* is at least fourteen.

Hab.—Australia.

It is possible that the locality of this bee is incorrect. There are two specimens in the British Museum; one purchased at a sale, the other, an old specimen, is, I believe, from Dr. Leach's collection.

SPECIES OF SOUTH AMERICA, BRAZIL, AND THE WEST INDIA ISLANDS.

78. *Xylocopa grossa*.

Centris grossa, Drury, Illus. Exot. Ent. i. 108, pl. 45, fig. 3, ♀.

Apis iricolor, Kirby, Mon. Apum Angl. ii. 310, pl. 17, fig. 9.

Xylocopa iricolor, St. Farg. Hym. ii. 185.

Xylocopa grossa, Smith, Cat. Hym. Ins., Apidæ, ii. 361.

The colour varying in different lights to purple, green, or blue; shining, finely and distantly punctured; the

pubescence black, and only found on the cheeks, legs, and sides of the abdomen; the legs are blue, the abdomen brilliant violet beneath; wings fusco-hyaline, with a faint violet tinge towards their apex. The male closely resembles the other sex; the eyes very large and nearly uniting on the vertex; the clypeus and the face on each side of it yellowish-white.

Hab.—Jamaica; Antilles (West Indies).

79. *Xylocopa viridis*.

Xylocopa viridis, Smith, Cat. Hym. Ins., Apidæ, ii. 360, ♂.

The male is green, the abdomen having a blue tinge; the labrum, clypeus, inner orbits of the eyes, a line on the mandibles, and the basal joint of the antennæ in front, yellowish-white; the pubescence on the thorax, above, pale fulvous; that on the entire insect beneath is nearly white; the anterior femora and tibiæ beneath, the apical joints of the anterior tarsi, and all the claw-joints, rufo-piceous; wings subhyaline, with the nervures ferruginous. The apical margins of the segments of the abdomen with a narrow fringe of white pubescence, slightly interrupted in the middle; the apical segment fringed with black pubescence. The female closely resembles the male, the posterior legs having the usual brush of hairs, white outside, black within, and tipped with ferruginous at the apex beneath; there is also a little ferruginous pubescence at the extreme apex of the abdomen, and on each side of it is a fringe of black hairs; the apical margins of the second and following segments have a narrow white marginal fringe, more or less interrupted in the middle. Length of the sexes seven lines.

Hab.—St. Paulo; Santarem (Brazil).

80. *Xylocopa barbata*.

Xylocopa barbata, Fabr. Syst. Piez. 141, ♀; St. Farg. Hym. ii. 190; Smith, Cat. Hym. Ins., Apidæ, ii. 361.

Black, with a violet tinge; the cheeks covered with white pubescence; the face has also a little white pubescence; the two apical segments of the abdomen fringed with white; the wings dark brown, with a purple and violet iridescence. The male is of a brighter blue or

violet colour; the eyes very large, meeting on the vertex; the labrum and clypeus whitish; the wings are of lighter colour. Length five to six lines.

Hab.—S. America; Cayenne; Brazil; Mexico.

81. *Xylocopa Brasilianorum*.

Apis Brasilianorum, Linn. Syst. Nat. 961, ♂; Fabr. Ent. Syst. ii. 323.

Xylocopa Brasilianorum, Latr. Ins. iii. 380; Fabr. Syst. Piez. 340; St. Farg. Hym. ii. 201; Guild. Trans. Linn. Soc. xiv. 315, tab. 8, fig. 1 ♀, 5 ♂.

Xylocopa chrysoptera, Latr. Obs. Zool. Humb. & Bonp. ii. 93, ♀, pl. 38, f. i.

Xylocopa teredo, Guild. Trans. Linn. Soc. xiv. 313, Tab. viii. fig. 1 ♀, 5 ♂; Westw. Nat. Libr. (Jardine), Entom. vi. 268, pl. 21, fig. 1 ♂, 2 ♀; Smith, Cat. Hym. Ins., Apidæ, ii. 360.

That the male is the *Apis Brasilianorum* of Linnaeus I have no doubt whatever; it in every respect agrees with the description in the "Systema Natura," which is fortunately more ample than is usual in the descriptions of the species of the genus *Apis*. Lansdowne Guilding referred the insect to the Linnean species, with a doubt; but after an examination of a large number of fulvous-coloured males of different species of the genus, I feel satisfied of this being the Linnean one. The female I do not think can be the *X. morio* of Fabricius, who describes the wings as "Alis cyaneis;" he also adds in "Mus. Dom. Banks," the specimen must have been lost in some way, as it was not in that collection when it came into the possession of the British Museum. The female of *X. Brasilianorum* has the wings, as described by Prof. Westwood, of "a brassy hue with purple reflections;" it is broad, black, shining, and has the head almost as wide as the thorax; the abdomen fringed with black pubescence; the thorax is rounded posteriorly, as is the case in all the South American species that I have seen. Length thirteen lines. The male is of a fulvous-yellow; the clypeus, and front of the scape of the antennæ, more or less yellow; the apical mar-

gins of the segments of the abdomen are more or less fuscous; the coxæ and femora nigro-piceous, the apex of the latter being fulvous; the anterior femora nigro-piceous behind. Length ten lines.

Hab.—Brazil; Cayenne; S. America; Peru.

82. *Xylocopa frontalis*.

Apis frontalis, Oliv. Ency. Méth. iv. 64, ♀.

Xylocopa frontalis, Fabr. Syst. Piez. 340; St. Farg.

Hym. ii. 175, ♀; Smith, Cat.

Hym. Ins., Apidæ, ii. 359.

Xylocopa morio, Fabr. Syst. Piez. 338?

Xylocopa fasciata, St. Farg. Hym. ii. 202 ♂.

The female is black, and has an elevation in front of each of the posterior ocelli, exactly like those on the vertex of *X. morio*, from which species it only differs in having the first three or four segments of the abdomen ferruginous, with their apical margins more or less broadly black. I believe this insect to be a variety of *X. morio*. The male is of a fulvous-yellow, its antennæ being only slightly fuscous above towards their base; the first segment of the abdomen is narrowly bordered with black; the rest of the segments very broadly so, having only a narrow line of yellow at their basal margins; the wings are flavo-hyaline, the nervures dark ferruginous. Length of male fourteen lines; of female fifteen to sixteen lines. The sexes are united on the authority of Mr. Dyson, who sent them from Venezuela with the indication of their affinity.

Hab.—Venezuela; Brazil; Cayenne.

83. *Xylocopa fimbriata*.

Xylocopa fimbriata, Fabr. Syst. Piez. 340, ♀; Schomb.

Faun. Flo. Brit. Guiana, iii. 591;

St. Farg. Hym. ii. 177; Smith,

Cat. Hym. Ins., Apidæ, ii. 359.

Xylocopa corniger, Westw. Nat. Libr. Entom. vi. 270,
pl. 21, fig. 3, ♀.

Xylocopa cornuta, St. Farg. Hym. ii. 176, ♀.

Xylocopa Cajennæ, St. Farg. Hym. ii. 203, ♂; La
Sagra's Hist. L'île de Cuba,
776.

There can be no doubt of this species being identical

with the two I have given as synonyms; the original description is, I think, conclusive; the affinity of the species to that of *X. frontalis*, the elevation of the lateral frontal ridges, are clearly pointed out by Fabricius.

The female is a large black insect that has a ridge on the vertex of the head; it is widely interrupted in the middle, and is more or less elevated laterally, forming tubercles or horns; they vary greatly in their elevation, but are always outside the posterior ocelli; in *X. frontalis* they are in front of them. I have compared the male with St. Fargeau's type; its pubescence is of a fulvous-red, but old examples lose this brightness and become tawny-yellow; the antennæ are slightly fuscous above, the anterior femora above, and the intermediate and posterior pairs, are entirely pitchy-black; the apex of the abdomen is densely covered with long rufo-fulvous pubescence; wings flavo-hyaline, slightly fuscous towards their apical margins. Length of the female thirteen to fourteen lines; of the male twelve lines.

Hab.—S. America; Cayenne; Brazil; Demerara; Mexico; Barbadoes.

84. *Xylocopa morio*.

Apis morio, Fabr. Ent. Syst. ii. 315, ♀.

Xylocopa morio, Fabr. Syst. Piez. 338; Latr. Ins. iii. 380; Halid. Trans. Linn. Soc. xvii. 319; Smith, Cat. Hym. Ins., Apidæ, ii. 359.

Xylocopa nitens, St. Farg. Hym. ii. 176, ♀.

A large black species, its pubescence black; shining, with the thorax in the middle, above, and the base of the abdomen, impunctate; the head closely punctured, with an elevation in front of each of the posterior ocelli; the anterior angles of the clypeus subtuberculate; the sides of the face pubescent; wings dark brown, with a bright green and violet iridescence. Length 16 lines.

Hab.—Amazons; Nicaragua; Demarara; Mexico.

85. *Xylocopa æneipennis*.

Xylocopa æneipennis, De Geer, Mém. iii. 573, pl. 28, fig. 8, ♀; St. Farg. Hym. ii. 186; Smith, Cat. Hym. Ins., Apidæ, ii. 360.

Black: the pubescence black; the disk of the thorax,

and the scutellum, shining and impunctate; the abdomen thinly covered with short pubescence, the lateral margins being thickly fringed; the wings subhyaline, and having a brilliant coppery lustre, the apical margins with a violet tinge. Length ten to eleven lines.

Hab.—Cayenne; Parana; Mexico.

86. *Xylocopa grisescens*.

Xylocopa grisescens, St. Farg. Hym. ii. 178, ♀.

This is a large conspicuous insect; it is black, with the thorax above and a portion beneath the wings covered with dense griseous pubescence; there is also a little on the hinder margin of the vertex; from the disk of the mesothorax it is usually more or less abraded, leaving a smooth shining space; wings dark brown, with green and violet iridescence. Length thirteen to fifteen lines.

Hab.—Brazil.

This species may possibly be the *Xylocopa lanigera* of the Hoffmannseggian Collection; I have received it as such, but I cannot ascertain that it has ever been described under that name.

87. *Xylocopa aurulenta*.

Bombus aurulentus, Fabr. Syst. Piez. 351, ♀.

Xylocopa aurulenta, St. Farg. Hym. ii. 192; Smith, Cat. Hym. Ins., Apidæ, ii. 361.

Black: the thorax clothed above with fulvous pubescence; the disk of the thorax shining and impunctate; the wings fusco-hyaline, with a bright coppery iridescence, tinted with violet at their apex. Length seven to eight lines.

Hab.—South America; Cayenne; Brazil.

— 88. *Xylocopa Augusti*.

Xylocopa Augusti, St. Farg. Hym. ii. 187, ♀; Smith, Cat. Hym. Ins., Apidæ, ii. 360.

This conspicuous insect is black, its pubescence black, except the fringe of the abdomen, which is ferruginous; the abdomen beneath is dark rufo-piceous, with the apical margins of the segments paler; the wings brown, with a bright gold and violet iridescence. Length eleven lines.

Hab.—Brazil; South America (Rio Grande).

89. *Xylocopa colona*.

Xylocopa colona, St. Farg. Hym. ii. 185, ♀; Smith, Cat. Hym. Ins., Apidæ, ii. 358.

A small black species, with fusco-hyaline wings, which have a brilliant golden iridescence, and with slight violet tints, observable in certain lights; the carina, in front of the anterior ocellus, terminates in a small tubercle between the antennæ; the sides of the thorax and abdomen densely covered with black pubescence; the disk of the thorax impunctate and shining; the abdomen finely punctured. Length nine lines.

Hab.—Cayenne; Brazil; Barbadoes.

90. *Xylocopa carbonaria*.

Xylocopa carbonaria, Smith, Cat. Hym. Ins., Apidæ, ii. 358, ♀.

A small black species; the flagellum of the antennæ piceous beneath; the margins of the clypeus elevated laterally; a raised carina in front of the anterior ocellus; head closely punctured; the face pubescent on each side; the thorax punctured, and pubescent, with a triangular smooth, shining and impunctate space on the disk; abdomen punctured, and thinly covered with a short black pubescence, the sides with a longer fringe; wings dark brown, with a bright violet iridescence. Length eight lines.

Hab.—Tapajos.

91. *Xylocopa dimidiata*.

Xylocopa dimidiata, Latr. Obs. Zool. (Humb. & Bonp.) ii. 95, ♀, pl. xxxviii. fig. 2, ♀.

Black and shining, with the thorax behind, and the abdomen above, more or less green, and tinted with violet in the middle of the segments; the wings are blue, tinted with violet. Length nine and a half lines.

Hab.—South America; Ega.

92. *Xylocopa macrops*.

Xylocopa macrops, St. Farg. Hym. ii. 209, ♂; Smith, Cat. Hym. Ins., Apidæ, ii. 359.

Black: the labrum and clypeus white; the thorax has a violet tint, the scutellum ciliated with white pubescence;

the abdomen is obscurely tinted with green; the first segment with black pubescence, and with a band of white in the middle; beneath violet, with a testaceous spot on each side of the intermediate segments of a triangular shape; wings fusco-hyaline, with a faint violet iridescence. Length nine lines.

This is a species I have not seen.

Hab.—Brazil.

93. *Xylocopa pulchra*.

Xylocopa pulchra, Smith, Cat. Hym. Ins., Apidæ, ii. 361, ♀.

This small and well-marked species has the head, thorax and legs black; the flagellum of the antennæ, except the first and second joint, fulvous beneath; disk of the thorax shining and impunctate; wings fulvo-hyaline, the nervures ferruginous; the posterior tarsi have the pubescence within of a mixture of black and ferruginous; outside it is nearly white, except at the apex, which is black; the abdomen is shining and finely punctured, the second and following segments have a broad fascia, interrupted in the middle, of ochreous pubescence. Length six and a half lines.

Hab.—Rio Janeiro.

94. *Xylocopa splendidula*.

Xylocopa splendidula, St. Farg. Hym. ii. 190, ♀;
Smith, Cat. Hym. Ins.,
Apidæ, ii. 360.

A small species of a nigro-violaceous colour; the pubescence black; the antennæ testaceous beneath, except the three basal segments; the wings subhyaline, with a green and violet iridescence. Length seven lines.

Hab.—Brazil; Nicaragua.

95. *Xylocopa virescens*.

Xylocopa virescens, St. Farg. Hym. ii. 186, ♀; Smith,
Cat. Hym. Ins., Apidæ, ii. 362.

Female.—Entirely black, with the pubescence black; the flagellum of the antennæ, except the basal joints, pitchy; wings brown-black, with a violet tint, and having a shining green iridescence. Length thirteen lines.

Hab.—Cayenne.

*96. *Xylocopa anthophoroides*.

Female.—Head and thorax black, the abdomen black, with a faint purple or violet tinge; the head has a fulvous pubescence on the vertex, on the face it inclines to griseous, it is also griseous on the cheeks. The thorax is clothed above with fulvous pubescence; beneath and at the sides, as well as on the coxæ and femora beneath, it is griseous; on the tarsi beneath the pubescence is ferruginous, as it is also on the apical portion of the posterior pair above, otherwise the legs have a griseous pubescence; the apical joints of the tarsi ferruginous; the wings fulvo-hyaline, their apical margins slightly clouded, the nervures ferruginous. Abdomen: the two basal segments thinly covered with short, pale-fulvous pubescence, the apical margins of the segments fringed with cinereous pubescence, as are also the two apical segments at the sides; the extreme apex with a tuft of ferruginous pubescence; all the segments beneath are narrowly rufo-testaceous, and are fringed with cinereous pubescence. Length six and a half lines.

Hab.—St. Paulo (Brazil); Mexico.

97. *Xylocopa artifex*.

Female.—Black, with black pubescence; that on the head being thinly scattered on the face and cheeks; an impressed line in front of the anterior ocellus, which terminates at a short raised line between the antennæ; the disk of the thorax and the scutellum smooth and shining; the claws only, not the claw-joint, ferruginous; the wings fusco-hyaline, and having a brilliant coppery iridescence, their apical portion tinted with violet; the abdomen is thinly covered with short black pubescence, its sides and apex being thickly fringed. Length seven lines.

Hab.—South Brazil.

This species is in every respect coloured the same as *X. æneipennis*, the wings being also of the same colour. St. Fargeau gives the variation of that species in length to be from six to ten lines, a difference not approached by any other species; the individuals measuring six lines were probably the present species. In one particular *X. artifex* differs from all examples which I refer to

X. æneipennis: its head is longer than broad, in the other species it is broader than long.

98. *Xylocopa lucida*.

Female.—Shining blue; finely but distantly punctured; on the vertex of the head, the disk of the thorax, and on the three first segments of the abdomen, are tints of violet; a little snow-white pubescence on the anterior margin of the clypeus; the wings fuscous, and with a violet iridescence; the apex of the abdomen fringed with black pubescence and a short white fringe on each side of it. Length eight lines.

Hab.—Para.

This unique example is from the private collection of Mr. H. W. Bates. This insect very closely resembles the female of *X. micans*; it may possibly be a variety of it, but it differs as follows from that species:—The deep pit observable in *micans* on each side of the clypeus, not upon it, is wanting; it has a snow-white tuft of hair on the anterior margin of the clypeus; the mesothorax is glassy smooth, and has only a few minute widely-scattered punctures at the sides; the metathorax is destitute of pubescence; the abdomen is much more finely punctured, and the insect is of a bright blue, not obscure violet; the wings are darker.

*99. *Xylocopa ornata*.

Female.—Head blue-black, with tints of violet on the vertex and of green on the clypeus; the sides of the face with griseous pubescence. Thorax obscure nigro-æneous above, with violet tints on the disk, which is smooth and shining; on the scutellum it is brassy; beneath green and with griseous pubescence; the legs are nigro-piceous beneath, and tinted with green above; the pubescence on the outside of the intermediate and posterior tibiæ is fulvous, within it is black; the wings subhyaline, and with a coppery iridescence; the nervures rufo-piceous. Abdomen of a shining brass colour, brightest towards the apex; punctured, but the apical margins of the segments are smooth and shining; the abdomen is covered with short fulvous pubescence, and, towards the apex, the sides are fringed with the same. Length seven lines.

Hab.—St. Paulo.

100. *Xylocopa rotundiceps*.

Female.—Entirely black, and with black pubescence, which is dense on the face and cheeks, as it is also on the thorax in front and on its sides; that on the legs is of the same colour, but on the anterior tarsi beneath it is ferruginous. The head large, nearly as wide as the thorax, the vertex broad and rounded laterally behind the eyes; more strongly and closely punctured than the thorax, which is impunctate on the disk and is rounded behind. The abdomen shining, the basal segment with only a few shallow, fine punctures; the two following segments sparingly punctured in the middle, but the rest of the abdomen much more closely and strongly punctured. Length eleven lines.

Hab.—Brazil.

*101. *Xylocopa similis*.

Female.—Black; the thorax above, the sides, beneath the wings, and the basal segment of the abdomen, clothed with ferruginous pubescence; on the thorax beneath, and all other parts of the insect, it is black; the disk of the thorax smooth, shining, and impunctate; the wings fuscohyaline, with bright-coppery iridescence, and tinged with purple towards their apex. Length ten lines.

Hab.—Para.

This species greatly resembles *X. aurulenta*, and only differs in having the ferruginous pubescence of the thorax continued on to the first segment of the abdomen, and in being two or three lines longer.

102. *Xylocopa varians*.

Female.—Dark blue, with changeable tints of green, the latter colour predominating on the abdomen; the face covered with short griseous pubescence, there is also a little on the cheeks. The disk of the thorax is shining and impunctate; behind the scutellum is a mixture of griseous and sooty-black pubescence; on the tarsi beneath the pubescence is fulvous, above it is of a silvery brightness; on the posterior tarsi within it is black; the apical joints of the tarsi ferruginous; the wings subhyaline, with a coppery iridescence. Abdomen punctured, with the apical margins of the segments narrowly impunctate; the sides of the abdomen fringed with black pubescence and

with a little that is ferruginous at the extreme apex; beneath, the apical margins of the intermediate segments are fringed laterally with white pubescence. Length seven lines.

Hab.—South Brazil.

*103. *Xylocopa metallica*.

Female.—Head blue-black, the vertex bright blue, and sparingly punctured; the cheeks with a purple tinge; the labrum with a single blunt, shining tubercle. Thorax black, with a slight tint of blue and violet on the disk of the mesothorax, which is smooth, shining, and impunctate; the tegulae, and anterior tibiae above, blue; wings fuscous, with a purple iridescence. Abdomen: the two basal segments metallic green; from thence to the apex of the abdomen gradually changing into bright, burnished copper; these segments have a fulvous pubescence, and the sides are fringed with longer pubescence of the same colour; beneath of a violet blue; the three apical segments fringed with fulvous pubescence. Length nine lines.

Hab.—Para.

This unique specimen was formerly in the private collection of Mr. H. W. Bates.

*104. *Xylocopa ordinaria*.

Female.—Black and closely punctured, the disk of the mesothorax impunctate. The tubercle between the antennae slightly raised; the lateral margins of the clypeus raised at its base; the antennae beneath, except the three basal segments, obscurely testaceous; the wings dark brown, and with blue and violet iridescence; the sides of the abdomen, as well as its apex, thickly fringed with black pubescence; at the extreme apex is a little that is ferruginous; beneath, covered with somewhat oblong punctures, and with a central raised, sharp carina that runs from the base to the apex. Length eleven lines.

Hab.—Brazil (Tejuca).

105. *Xylocopa affinis*.

Xylocopa affinis, St. Farg. Hym. ii. 210, ♂; Smith, Cat. Hym. Ins., Apidae, ii. 361.

One of the smallest species of the genus. Head and thorax black, the abdomen obscure violet. The labrum

and the face below the antennæ white; the pubescence on the thorax and the extreme apex of the abdomen rufous; as it is also on the margins of one or two of the apical segments; the pubescence on the legs is of a mixture of black and rufous. Length five lines.

Hab.—Cayenne.

106. *Xylocopa fervens*.

Xylocopa fervens, St. Farg. Hym. ii. 196, ♂; Smith, Cat. Hym. Ins., Apidæ, ii. 359.

A large black species; the pubescence on the head and thorax rufous; the anterior and intermediate legs have a mixture of black and rufous pubescence. The basal segment of the abdomen and the cilia on the fifth and the sixth segments are rufous; wings brown-black, with a violet iridescence. Length fourteen lines.

Hab.—Cayenne.

St. Fargeau gives the above locality, but I am inclined to think he is wrong, and that the insect is a fine variety of *X. flavo-rufa* from S. Africa.

107. *Xylocopa erratica*.

Male.—Black and punctured; the head and abdomen closely so; the disk of the thorax impunctate, also a narrow smooth line down the middle of the abdomen; the pubescence griseous; on the body beneath, and on the legs it is palest; on the posterior legs, above, it is black; the scape nigro-piceous in front; the flagellum, except the two basal joints, fulvous beneath; the clypeus, and a broad line at the inner orbits of the eyes, which becomes narrower at their summit, and then terminates in an ovate spot on the vertex, yellow, a black line down the middle of the clypeus; the wings subhyaline, with coppery iridescence, and tinged with violet at their apex. Length seven lines.

Hab.—South Brazil.

*108. *Xylocopa electa*.

Female.—Head and thorax black, the abdomen nigro-æneous; the labrum with three small tubercles; a carina in front of the anterior ocellus, and also a slightly raised one from the posterior ocelli which runs to the margin of the vertex. The disk of the thorax, and the scutellum, shining and impunctate, or with only a few very fine distant punc-

tures; wings subhyaline, their apical margins with a fuscous cloud, and having a coppery iridescence. Abdomen evenly and finely punctured above, with the apical margins narrowly shining, impunctate, and rufo-testaceous; the apical segment fringed with black pubescence; on the fifth segment the fringe is white; the ventral segments have a little, white, marginal fringe on each side. Length six lines.

Hab.—Venezuela.

109. *Xylocopa nigro-cincta*.

Xylocopa nigro-cincta, Smith, Cat. Hym. Ins., Apidæ, ii. 354, ♀.

The head and thorax black; the abdomen ferruginous, the apical margins of the segments with black fasciæ; the apical segment black; the sides ciliated with black pubescence; beneath is a central longitudinal carina; the wings fusco-ferruginous, with a splendid violet iridescence. Length ten lines.

Hab.—South America.

110. *Xylocopa viridigastra*.

Xylocopa viridigastra, St. Farg. Hym. ii. 186, ♀; Smith, Cat. Hym. Ins., Apidæ, ii. 362.

Head and thorax black, abdomen blue-black, with bright violet tints, observable in certain lights, the sides thinly fringed with black pubescence; the entire abdomen has a thin, short pubescence; the wings fuscous, with tints of purple and violet iridescence. The male has the abdomen more brightly coloured, having shades of purple and blue; the clypeus, the face on each side of it, and the scape in front, yellow. Length nine to twelve lines.

Hab.—Peru.

111. *Xylocopa mordax*.

Female.—Entirely black, and with black pubescence; that on the face and cheeks is long and dense; on the thorax in front, and on the sides, it is short and velvety; the legs very pubescent, and the fringe on the sides and apex of the abdomen is thick and tufted. The upper margin of the clypeus elevated and shining; the labrum

with three teeth, or tubercles; the flagellum of the antennæ beneath, beyond the second joint, is rufo-testaceous; the wings brown-black and adorned with a brilliant purple iridescence; the inferior margin of the posterior wings is coppery; the abdomen finely punctured. Length eleven lines.

Hab.—San Domingo; Island of Nevis (Lesser Antilles).

SPECIES OF NORTH AMERICA.

C — 112. *Xylocopa virginica*.

Apis virginica, Drury, Illus. Exot. Ins. i. 96, pl. 43, fig. 1, ♂; Fabr. Ent. Syst. ii. 318, 15.

Bombus virginicus, Fabr. Syst. Piez. 346.

Xylocopa virginica, Westw. ed. Drury (1837), pl. 43, fig. 1; Smith, Cat. Hym. Ins., Apidæ, ii. 362; Cresson, Hym. Texana, 283.

Centris carolina, Fabr. Syst. Piez. 357, ♂.

Xylocopa carolina, St. Farg. Hym. ii. 207, ♂, ♀; Say, Bost. Journ. Nat. Hist. i. 412; Smith, Cat. Hym. Ins., Apidæ, ii. 363.

The sexes of this species are similarly coloured; they are black, the pubescence on the thorax and basal segment of the abdomen above have a pale rufo-cinereous pubescence; there is also a little on the anterior tarsi; the rest of the pubescence is black; the male has the eyes large, and approximating on the vertex; and has the clypeus, and the face on each side of it, as high as the insertion of the antennæ, yellowish-white.

Hab.—United States; Florida; Carolina; Virginia; Texas; Cuba.

— 113. *Xylocopa texana*.

Xylocopa texana, Cresson, Hym. Texana, 283, ♂, ♀.

This species resembles *X. virginica*, and is about the same size, from nine to ten lines long; but it is of a blue, or dark-green colour, varying in different specimens in that respect; the head is black; and faintly blue on the vertex; the thorax usually dark green, the abdomen dark green, or olive. The pubescence of the female is pale ochraceous on the thorax above, there is a little beneath the wings, also on the basal segment of the abdomen, and on each side the

apical segment; the rest of the pubescence is black. In the male, the pubescence of the head, thorax, and basal segment of the abdomen, is ochraceous; on the three apical segments is a mixture of black and ochraceous pubescence; the labrum and clypeus yellowish-white, eyes approximating on the vertex.

Hab.—Texas.

114. *Xylocopa tabaniformis*.

Xylocopa tabaniformis, Smith, Cat. Hym. Ins., Apidæ, ii. 362, ♀.

Black.—The face and cheeks with short griseous pubescence; the thorax clothed with hoary pubescence, intermixed with sooty-black; the second, and three following segments have their apical margins bordered laterally with ochraceous bands; the posterior tibiæ, and the intermediate and posterior tarsi, are clothed outwardly with ochraceous pubescence; wings subhyaline, slightly clouded at their apex. The male closely resembles the female, but has the clypeus and labrum yellow, and only the second and third segments of the abdomen bordered with ochraceous pubescence; the following segments are fringed with black. Eight lines long.

Hab.—Mexico (Oajaca).

115. *Xylocopa cyanea*.

Male.—The head black; the thorax, legs and abdomen dark blue; the thorax exhibits, above, tints of green and violet; the mesothorax has an oblong impunctate space on the disk, its sides being closely and rather finely punctured; the abdomen finely and closely punctured. The labrum, clypeus, and a triangular spot above it and uniting with it, yellowish-white. The pubescence on all the tarsi, beneath, is ferruginous; the anterior pair being fringed with a mixture of fuscous and ferruginous pubescence; the wings are fusco-hyaline, and have a coppery iridescence. There is a little cinereous pubescence at the sides of the thorax, and also on the front of the thorax and the base of the abdomen, the apex of the latter being densely covered with black pubescence. Length ten to eleven lines.

Hab.—Mexico.

This insect I received from Dr. Sichel with the name (“*cyanea*, Sichel, n. s.”) attached; not having been able to

ascertain whether the species has been described, I have adopted the name, believing it to be a manuscript one.

— 116. *Xylocopa micans*.

Xylocopa micans, St. Farg. Hym. ii. 208, ♂.

Xylocopa vidua, St. Farg. Hym. ii. 210, ♀.

This species is readily distinguished; the female is of a dark blue-black, the abdomen usually having a violet or purple tint; the pubescence is black, except a thin fringe on the thorax posteriorly of griseous pubescence; a tuft of white on each side of the basal segment of the abdomen, and another on each side of the apical segments; between these the fringe is black; the wings subhyaline, with their apex clouded. Length seven to eight lines.

The male is of a nigro-æneous colour, the abdomen partaking of vivid tints of violet and blue in certain lights; the labrum, clypeus, the face on each side, and the scape of the antennæ in front, yellowish-white. The pubescence on the thorax, basal segment of the abdomen, anterior tibiæ and tarsi, and the outside of the femora, rufo-fulvous; the intermediate tarsi are densely fringed with black pubescence, the first joint having a patch of white. The eyes large and approximating on the vertex. The abdomen testaceous beneath. Having had an opportunity of seeing the types of the sexes, I have united them as constituting one species.

Hab.—Carolina; East Florida.

— 117. *Xylocopa cubæcola*.

Xylocopa cubæcola, Lucas, La Sagra's Hist. Cuba, 776, pl. 19, fig. 8, ♀.

Xylocopa morio, Cresson (nec Fabr.), Hym. Cuba, 190, ♂, ♀.

The "*morio*" of Fabricius is undoubtedly one of the large species of the genus, the original description in the "Entomologia Systematica" gives "*Magna, tota atra,*" and remarks on its close affinity to *X. latipes*. Cresson, I believe, is in error in referring this small species to the Fabrician one.

The male of *X. cubæcola* is fulvous, with the labrum, clypeus, and antennæ beneath, pale yellow; between the antennæ, on the vertex posteriorly, and on the thorax, the pubescence is fulvous; at the base of the abdomen it is

short and dense, and long and dense at its apex; the apical margins of the segments are obscurely fuscous. Length eight and a half lines.

Female entirely black, punctured, and shining; the disk of the thorax and the scutellum sparingly punctate; the flagellum of the antennæ, except the three basal joints, testaceous beneath; wings fusco-hyaline, darkest at their apex, and having a violet iridescence. Abdomen: the apical segments fringed laterally with black pubescence; at the extreme apex is a little ferruginous pubescence; this would probably be frequently obliterated. Length eleven lines.

Hab.—Cuba.

*118. *Xylocopa orpifex*.

Female.—Entirely black and closely punctured; the frontal tubercle obsolete; the labrum with a single tooth, and fringed with ferruginous hairs. The thorax pubescent, and having a small impunctate space on the disk; wings fusco-hyaline, with a darker cloud at their apical margins. Abdomen finely but not closely punctured. Length seven and a half lines.

Male.—Black, a spot on the mandibles and the face, as high as the insertion of the antennæ, pale yellow; the front of the thorax with ochraceous pubescence; on the thorax beneath the pubescence is paler. Abdomen finely and sparingly punctured; wings as in the other sex. Length seven and a half lines.

Hab.—California.

*119. *Xylocopa loripes*.

Male.—Blue-black, with violet and purple tints on the thorax and abdomen; the pubescence black; the clypeus, a space above it, the face at its sides, and also the abdomen beneath, yellow; the wings fusco-hyaline, with a slight violet iridescence; the anterior and intermediate tibiæ and tarsi with a long fringe of black pubescence behind; the posterior tibiæ curved, thickened, and deeply notched at their apex; the notch is a curved exterior excavation, and terminates in a short spine; the first joint of the tarsi is densely pubescent, and exteriorly forms a long floccus. The sides of the abdomen are thickly fringed with pubescence, forming a thick brush at the apex. The eyes very

large, and almost uniting on the vertex. Length ten lines.

Hab.—Mexico (Oajaca).

120. *Xylocopa lateralis*.

Xylocopa lateralis, Say, Bost. Journ. Nat. Hist. i. 413, ♂.

Obscurely violaceous; the head black, the labrum, clypeus, and front of the scape of the antennæ, white. The abdomen with a lateral fringe of cinereous pubescence which extends upwards on each side, becoming obsolete towards the base. Length about nine lines.

Hab.—Mexico.

121. *Xylocopa purpurea*.

Xylocopa purpurea, Cress. Hym. Texana, 284, ♀.

Black, with a purple reflection and with blue or green tints in certain lights; abdomen deep purple, the pubescence black; the head punctured, but sparingly so on the vertex; an oblique indentation at the summit of the eyes; wings smoky, their apex dark. Abdomen punctured, most closely so at the sides; the apex with black pubescence, and having a tuft of white on each side. Length about eight and a half lines.

Hab.—Texas.

*122. *Xylocopa tenuata*.

Female.—Dark blue, with shades of violet on the thorax and abdomen; the disk of the thorax impunctate, otherwise the thorax and head are closely punctured; the abdomen is more finely and distantly punctured; the three apical segments have a green tint and are closely and finely punctured; wings fusco-hyaline, with a slight violet iridescence. Length six and a half lines.

Hab.—Mexico.

*123. *Xylocopa formosa*.

Female.—Dark blue; on the vertex and on the disk of the mesothorax are shades of violet, as there are also on the legs and on the abdomen beneath; the anterior coxæ rufo-testaceous beneath. The head closely punctured,

a smooth line down the middle of the clypeus. The entire pubescence black, of which there is a tuft on each side of the face; wings brown, with a violet iridescence and a faint green tint at their apex; the thorax covered with short pubescence. Abdomen closely punctured, and thinly covered with short fine pubescence; the apical segments fringed laterally with long, loose, black hairs. Length eight lines.

Hab.—Mexico.

NOTE.—A * distinguishes the new species, the types of which are in the collection of the British Museum.

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XI. *Notes on the Buprestidæ collected by Professor Semper in the Philippine Islands; with descriptions of the new species.* By EDWARD SAUNDERS, F.L.S.

[Read 16th March, 1874.]

HAVING recently obtained the collection of *Buprestidæ* formed by Professor Semper in the Philippine Islands, I here give a list of the species contained in it, and descriptions of those which have not before been characterized. The general style of the *Buprestidæ* fauna is almost similar to that of the Moluccan Islands; in a few instances the same species occur in both, but where this is the case a distinct variation is generally observable, so that one could easily say whether the individual came from the Philippines or the Moluccas. There is only one genus in the collection which is not found in the latter islands, viz., *Acmaeodera*, which is represented by a species which occurs also in Siam and India. The most interesting series in the boxes is that of *Chrysodema Smaragdula*, Oliv., which exhibits great variety both in colour and form; the same species occurs commonly in the Moluccas, where it is equally variable, and yet almost all the Philippine specimens have an aspect peculiar to themselves, whereby they are distinguishable from their more southern relations. The collection contains altogether fifty-eight species, of which thirty-six are here described as new.

Catoxantha nigricornis, H. Deyr.

Ann. Soc. Belg. viii. p. 1.

A fragment, showing the transverse band on the elytra, from North Luzon.

Chrysochroa Semperi, E. S.

Aureo-viridis, thorace punctato, præsertim in lateribus, lineâ dorsali angustissimâ caruleâ. Elytra punctato-lineata, utrinque lineis quatuor subelevatis, apice minute denticulata. Subtus punctata.

Pale brassy-green. Thorax with a very narrow blue

dorsal line in the ♀. Head channelled between the eyes, and coarsely punctured. Thorax with the sides very slightly rounded; disk finely and sparsely punctured, with a small round impression on each side of the dorsal line in the ♂. Sides densely and coarsely punctured; near each posterior angle is a slight punctured impression. Elytra with its sides somewhat parallel, finely denticulate just at the apex. Surface finely punctured, the punctures arranged in lines; on each elytron four of the interstices are more raised than the others, forming obsolete costæ. Beneath and legs finely punctured. Antennæ black, first two joints green.

♂. Length 16 lines; breadth 4 lines.

♀. Length 27 lines; breadth 6 lines.

Hab.—Luzon, ♂ and ♀.

Should precede *prælonga*, White: allied to *prælonga* White, and *Chrysuræ*, L. & G., but differs essentially in the pale colour, which is most remarkable, and in the more rugose punctuation of the elytra, which gives them a duller appearance. It is a species which can be separated at once from its allies.

Chrysochroa prælonga, White.

Ann. Nat. Hist. xii. p. 343.

Several specimens from Luzon and Mindanao.

This is the species known in many collections as *Escholtzii*, Laf.

Chrysochroa chrysuræ, Gory.

Mon. Suppl. p. 55, pl. x. fig. 55.

Several specimens from Mindanao, Bohol, Siargao, Leyte.

Iridotænia cupreo-marginata, E. S.

Caput æneo-nigrum. Thorax punctatus, æneus, marginibus late cupreis, lineâ dorsali impressâ. Elytra æneovirida, punctato-striata, lateribus antice cupreis. Subtus punctata, aureo-cuprea.

Head bronzy-black, excavated and deeply punctured between the eyes. Thorax bronzy on the disk, coppery on the sides, with the sides rounded, shaped much as in *I. curta*, H. Deyr.; surface punctured on the bronzy part,

rugose on the coppery dorsal line, impressed, especially at the base; on each side, near the posterior angle, is a small elongate impression extending from the base; base narrowly edged with coppery colour. Elytra bronzy-green, the shoulders of each coppery, the coppery colour extending, but gradually narrowing, to about three-quarters of the length of the elytra. Sides slightly sinuate below the shoulders, apex denticulate, surface finely punctured in lines, the punctures closer together on the sides and near the apex. Beneath golden-coppery, punctured, covered with short pubescence, legs with green reflections.

Length 12 lines; breadth 4 lines.

Hab.—Mindanao.

Should follow *curta*, H. Deyr.

This species varies to a dull bronzy colour above, with the sides of the thorax and shoulders of a coppery brown.

Iridotænia trivittata, E. S.

Cyaneo-nigra, capite aureo, excavato. Thorace, lineâ dorsali impressâ aureâ, lateribus subrugosis aureis. Elytris punctato-lineatis, suturâ vittâque utrinque aureis. Subtus cupreo-aurea, pedibus viridibus.

Head golden, deeply excavated and punctured between the eyes. Thorax bluish-black, elongate, sides with a callosity above the hind angles, base nearly straight; dorsal line finely and sharply impressed, rather wider near the base, golden; sides of the same colour; surface finely punctured on the disk, coarsely on the sides. Elytra twice and a-third as long as wide, finely but irregularly punctured in lines, of the same colour as the thorax, with the suture and a vitta on each extending from the base just above the shoulder to the apex, golden; sides subparallel to behind the middle, then attenuate to the apex, denticulate posteriorly. Beneath very finely punctured, sides covered with a very fine greyish pubescence; legs greenish.

Length 13 lines; breadth $3\frac{3}{4}$ lines.

Hab.—Luzon and Mindanao, ♂ and ♀.

Should precede *cyaniceps*, Fab.

♀ differs in being wider and less acuminate, and having the vittæ of the elytra wider and greenish.

Iridotænia sulcifera, E. S.

Purpureo-fusca, capite excavato. Thorace valde punctato, lineâ dorsali angustâ impressâ, foveâque longitudinali laterali. Elytris punctatis, utrinque sulco viridi-æneo ornatis. Subtus cupreo-fusca, punctata.

Purplish-brown. Head excavated between the eyes, punctured. Thorax largely and deeply punctured, the punctures closer together on the sides; dorsal line deeply and narrowly impressed. Anterior margin slightly produced, sides nearly straight till they almost reach the head, then rather suddenly converging and continued to the anterior margin, so forming a sort of collar; along each side is a rather deeply-impressed line, extending from the base not quite to the anterior margin. Elytra irregularly punctured, each with a bronzy-green impressed line, extending from the base near the shoulder to the apex; sides denticulate near the apex. Beneath and legs coppery-brown, finely punctured and covered with very fine white hairs.

Length $12\frac{1}{2}$ lines; breadth 4 lines.

Hab.—Luzon. Unique in the collection.

Allied to *sulcata*, Thunb., which it should follow.

Chrysodema flavicornis, E. S.

Caput cupreo-purpureum. Thorax obscure purpureo-niger, subrugosus, lineâ dorsali elevatâ. Elytra profunde et valde punctato-striata, purpureo-nigra, utrinque marginibus flavo-sulcatis, apice cuprea. Subtus aureo-cuprea, antennis flavis.

Head coppery-purple, punctured, excavated in front. Thorax largely and irregularly punctured, and somewhat rugose, obscure purplish-black, the base with coppery reflections, dorsal line raised. Sides rounded slightly in front, base twice as wide as the anterior margin. Scutellum coppery. Elytra considerably wider than the thorax, slightly sinuate below the shoulders, gradually narrowing from the middle to the apex, and sharply denticulate; purple-black, with their apex coppery; very largely and deeply punctate-striate, the punctures green, each margin with a golden-green impression extending from the base to the apex and filled with yellow powdery pubescence.

Beneath and legs punctured golden-copper colour. Antennæ flavous.

Length 13 lines; breadth 5 lines.

Hab.—Bohol. Unique in the collection.

This very distinct species may be known from any of the genus by its thorax being entirely destitute of foveæ.

Chrysodema philippinensis, Lap. & Gory.

Monog. Buprest. vol. 1, Chrysod. p. 7, pl. ii. fig. 8.

Two specimens from Luzon.

Chrysodema Deyrollei, E. S.

Aureo-viridis, subtus cupreo-micans, capite excavato. Thorace valde punctato, lineâ longitudinali elevatâ, angulis posticis foveatis. Elytris crebre punctatis, prope basin subrugosis, lincis quatuor irregularibus elevatis marginibus postice denticulatis. Subtus punctata.

Golden-green. Beneath and legs with coppery reflections; antennæ brown, tarsi coppery. Head finely punctured on the vertex, excavated and shining between the eyes, with a deeply-impressed, coppery median line, the sides of the excavation sparsely punctured. Thorax subrugose and deeply punctured; dorsal line elevated, rather wide and smooth (with a strong power it will be seen to be exceedingly finely punctured); near each hind angle is a round fovea met by an oblique impressed line from the margin. Elytra closely and finely punctured, subrugose on their basal half, each with the suture and four lines raised; of these the second and fourth alone reach the apex, the first and third being abbreviated, the former about two-thirds of the entire length of the elytra from their base, the latter just about the middle. Sides denticulate posteriorly, apex ending in a single tooth. Beneath and legs finely punctured. Prosternum, metasternum and first two segments of abdomen in the middle largely punctured.

Length 14 lines; breadth $5\frac{1}{2}$ lines.

Hab.—Luzon.

Should follow *philippinensis*, L. & G.

A very distinct species, represented by a single specimen.

Chrysodema Dohrnii, E. S.

Aureo-viridis, capite excavato. Thorace punctatissimo lineâ dorsali elevatâ, lateribus utrinque lineâ longitudinali impressâ. Elytris, suturâ lineisque quatuor valde elevatis, apice cupreâ. Subtus punctata.

Golden-green, with a slight coppery tint, the extreme apex of the elytra coppery. Beneath of a more coppery hue; tarsi coppery.

Head excavated between the eyes, closely punctured all over, excavation with an impressed longitudinal line, met in front by an oval impression. Thorax with the sides regularly rounded; surface closely punctured, punctures confluent in places so as to form slight rugosities; dorsal line rather wide and raised, with several large punctures irregularly disposed on it. Sides each with an impressed line midway between the dorsal line and the margin, starting from the base and extending for about two-thirds of the length of the thorax. Elytra finely and closely punctured, each with the suture and four well-defined lines, considerably raised and smooth; sides denticulate behind. Beneath and legs finely punctured.

Length 13 lines; breadth $4\frac{1}{2}$ lines.

Hab.—Mindanao. One specimen only—a ♀.

Should precede *Mniszechii*, H. Deyr., which it much resembles, although quite distinct from it.

Chrysodema eximia, L. & G.

Mon. Bupr. i., Chrysod. p. 8, pl. 2, fig. 9.

Two of the specimens are of a dark brownish hue.

Hab.—Luzon. Var. from Mindoro.

Chrysodema intercostata, E. S.

Capite purpureo-cupreo. Thorace viridi, marginibus cupreis, lineâ dorsali elevatâ. Elytris punctatis, striatis, quatuor lineis magis prominentibus, suturâ marginibusque cupreis. Subtus fusco-purpurea.

Head deep fiery copper-colour, finely punctured, shining, excavated and channelled between the eyes. Thorax green, punctured, and somewhat finely rugose, especially on the sides; dorsal line raised, met at the base by a large puncture; margins coppery. Sides each with a

round impression above the angle. Elytra transversely rugose at the base, green, with the suture and margins coppery, each with the suture and four lines raised; between these more elevated lines are somewhat irregular intermediate costæ. The ground of the elytra is very finely and closely punctured, the more elevated lines smooth, with occasional punctures, the intermediate ones rugose on their sides; lateral margins denticulate posteriorly. Beneath and legs punctured, dark coppery brown.

Length 15 lines; breadth 5 lines.

Hab.—N. Luzon.

Closely allied to *eximia*, L. & G., but I can find no intermediate forms, so I describe it as distinct; the intermediate costæ at once distinguish them.

Should follow *eximia*, L. & G.

Chrysodema purpureicollis, E. S.

Capite purpureo-fusco. Thorace purpureo viridi-micante, fortiter punctato, lineâ dorsali elevatâ, lateribus postice transversim foveatis. Elytris viridibus, utrinque lineis quatuor suturâque elevatis; lateribus inauratis, disco utrinque supra medium maculâ parvâ cupreâ notato. Subtus purpureo-fusca.

Head purple-brown, finely punctured and excavated. Thorax purple, with green reflections, largely and deeply punctured, dorsal line raised and smooth; sides each with a deep transverse impression just above the base, lateral margins golden posteriorly, base nearly straight. Elytra green, very finely and closely punctured and subrugose; the rugosities smooth, each elytron with the suture and four lines raised, and cyaneous-black, sides of each golden-coppery colour, the colour extending from the shoulder not quite to the apex, and extending just below the middle into a sort of coppery spot; there is also a small round coppery spot on the disk of each, just above the middle; sides denticulate posteriorly, apex of each finely truncate. Beneath coppery-brown, punctured and finely pubescent.

Length 12 lines; breadth $4\frac{1}{2}$ lines.

Hab.—North Luzon.

Should precede *adjuncta*, E. S.

Chrysodema adjuncta, E. S.

Capite cyaneo-nigro, oculis viridi-cinctis. Thorace cyaneo-nigro, viridi-punctato, lineâ longitudinali elevatâ lævi, angulis posticis foveatis. Elytris cyaneo-nigris, quatuor lineis suturâque elevatis, interstitiis aureis, cyaneo-rugosis. Subtus viridi-punctata.

Head cyaneous, eyes margined with green. Thorax cyaneous-black, largely and rugosely punctured with greenish-golden punctures, dorsal line elevated and smooth; near each posterior angle is a deep round impression; base and a line on each side of the dorsal line green; there is also a punctured, green, oblique, abbreviated line starting from the anterior angle. Elytra cyaneous-black, each with the suture and four lines raised; interstices golden-green, very finely and closely punctured and sub-rugose, the raised portions cyaneous. The rugosities are more frequent and stronger on the disk, thus causing the sides and apex to be of a more golden colour; sides denticulate posteriorly. Beneath and legs green-punctured.

Length $13\frac{1}{2}$ lines; breadth 5 lines.

Hab.—Babuyanes.

Allied to *variipennis*, but much larger and more obscure in colour. I have a variety in which the third costa is abbreviated, leaving a large narrow triangular impression between the fourth and second, extending to the apex.

Chrysodema variipennis, E. S.

Capite excavato, cyaneo-nigro, oculis viridi-cinctis. Thorace cyaneo-æneo, rugose et irregulariter viridi-punctato, lineâ dorsali elevatâ, angulis posticis minute auro-foveatis. Elytris cyaneis, reticulatis, rugose viridi-punctatis; utrinque lineis quatuor cyaneis elevatis, et etiam impressionibus parvulis tribus ante medium, tribusque majoribus post medium, aureo-viridibus ornatis. Subtus viridi-aurea. Elytra interdum quadricostata sine impressionibus sunt.

Head cyaneous-black, the eyes surrounded by a row of green punctures. Thorax cyaneous-black, unevenly punctured and rugose, the impressed portions golden-green; dorsal line raised, bounded on each side by a golden-green line; near each hind angle is a small, deep, golden fovea; there is also a golden line extending from the front angle in an oblique direction and uniting with the fovea. Sides

slightly rounded; base nearly straight. Elytra irregularly reticulated, cyaneous-black, each with the suture and four lines raised; between these lines are numerous irregular, closely punctured, little impressions; above the middle are three larger ones, placed side by side, and below the middle three other larger ones still, forming almost a transverse band; all these impressions are golden-green and very finely and closely punctured. Posterior margins denticulate. Beneath golden, finely and closely punctured; posterior margins of the abdominal segments sparsely punctured and cyaneous. Legs green.

Length $9\frac{1}{2}$ lines; breadth 4 lines.

Length varies to nearly 12 lines.

Hab.—Mindanao, Luzon, Bohol.

A very variable species. I have made my description from a specimen which seemed to me the best defined form, and from which the variations could be more easily expressed. The thorax is nearly alike in all.

Below I give the varieties.

Type from Mindanao.

Var. 1. Of the same colour as the type, interstices much less rugose, second and third (outer) posterior impressions united and produced in an elongate line to the apex.

From Mindanao.

Var. 2. Like var. 1 in sculpture, but bright coppery, with the raised portions cyaneous-black; legs blue.

Luzon.

Var. 3. More golden in colour, only one very small faint anterior impression; posterior impressions as in var. 1 and var. 2, but less strongly marked.

Bohol.

Var. 4. Like var. 3, but stouter and of a blue-green.

Mindanao.

Var. 5. Interstices rugosely punctured. No impressions.

Mindanao, Bohol.

Chrysodema proxima, E. S.

Aureo-viridis, thoracis elytrorumque lineis elevatis cyaneis. Thorax lineâ dorsali elevatâ, angulis posticis flavo-foveatis. Elytra rugositer punctata, utrinque lineis quatuor suturâque elevatis, antice foveolâ rotundatâ, pos-

tice impressionibus duabus flavo-tomentosis ornata. Subtus aureo-viridis.

Golden-green; head cyaneous, in some specimens purple, and in one variety green; raised portions of the thorax and elytra cyaneous.

Head excavated between the eyes, strongly punctured. Thorax with the sides somewhat rugose, surface strongly punctured, with a raised, smooth dorsal line; posterior angles acute, above each is a small round fovea; there is also, on each side, near the anterior angle an irregular rugose impression, produced almost to the posterior fovea. Elytra cyaneous, with golden-green reflections, golden punctured and finely rugose, each with the suture and four lines raised and smooth, of these the first and second unite some little distance above the apex, and then join the fourth at the apex, the third is abbreviated. On each elytron there is a transverse fovea above the middle, another behind the shoulder, and two golden spots behind the middle, one between the first and second costæ, the other, a larger one, between the second and fourth; these depressions are filled with a yellow powdery pubescence. Beneath golden-green, punctured, margins of abdominal segments cyaneous.

Length 8 lines; breadth 3 lines.

Female 12 lines; breadth $4\frac{3}{4}$ lines.

Hab.—Mindanao.

Shorter and stouter than *smaragdula*, Oliv.; duller, and the elytra less attenuate; in some specimens the apex only is denticulated. I separate it with doubt, and yet the four specimens I have all agree in character, and are in general aspect quite distinct from *smaragdula*, Oliv.

Chrysodema Smaragdula, Oliv.

Of this exceedingly variable species there are three distinct forms in the collection:—

1st. The ordinary form—metallic green, with numerous golden foveæ on the elytra; in this the male is very much smaller than the female.

There is one male only, from Luzon.

Four females, from Alabat, Leyte, Luzon and Mindanao.

2nd. A smooth, cyaneous-black insect, each elytron with about thirteen small white spots.

Two females, from Bohol.

3rd. A flatter, more boat-shaped form; entirely pale golden-green, with only a few feebly-defined impressions; the ♂ and ♀ of the same size. I have great doubt whether this may not prove to be distinct.

Three specimens, all from Mindanao.

Chrysodema Dalmannii, Mann.

Smaragdula, Lap. & Gory, Mon. i., *Chrysod.* p. 8, pl. ii.
fig. 10.

Babuyan and North Luzon.

Chrysodema Rouxii, L. & G.

Mon. Bupr. i., *Chrysod.* p. 9, pl. iii. fig. 11.

Luzon and Cebu.

Chrysodema antennatus, E. S.

Viridi-ænea. Thorace auro-punctato, lineâ dorsali elevatâ, lateribus utrinque postice rugose auro-foveatis; elytris auro-foveato-striatis et reticulatis, lateribus utrinque sulcatis, subaureis: Subtus aureo-viridis. Antennis elongatis, pilosis; tibiis intermediis maris subtus dense pilosis.

Bronzy. Head excavated between the eyes and sulcate. Thorax with its sides slightly rounded, hind angles acute, base nearly straight; surface rugose and irregularly punctured, the punctures golden; dorsal line raised and smooth; sides each with a rugose golden fovea near the hind angle. Elytra reticulated, covered with small, round, golden, punctured foveæ, arranged in lines, the alternate interstices a little more raised than the others, forming four very slight costæ. Sides denticulate posteriorly, sulcate and golden, each with two coppery-golden spots, one just behind the shoulder the other behind the middle. Beneath punctured, golden green. Male with the femora and tibiæ of the second pair of legs densely pubescent beneath. Antennæ very long, each joint with several long hairs.

♂. Length 11 lines; breadth 4 lines.

♀. Length from 11 lines to 13 lines.

Hab.—Mindanao and Camiguin de Mindanao.

This species should stand at the end of the genus, and makes almost a genus in itself. The tibiæ and femora of

the second pair of legs in the male are densely pubescent beneath. The antennæ are very long and each joint is furnished with several long hairs. In the female there is no villosity on the legs, and the antennæ are shorter, although not so short as in the other species of the genus; the joints are hairy, but the hairs are not so long as in the male. The species varies much. I have four specimens which are entirely of an olive-green colour, the punctures and foveæ being green instead of golden. The elytra also show no signs of longitudinal costæ. I thought at first they would form a second species, but have no doubt they are really all the same.

Evides Wallacei, Thoms.

. Arch. Entom. vol. i. p. 109.

Var. *Philippinensis*, H. Deyr.

Differs from the type in being rather more robust and more strongly punctured in the female. The shoulders of the elytra are also more prominent.

Many specimens.

Dicercomorpha mutabilis, E. S.

Caput rugosum, viride. Thorax viridis, valde punctatus, lateribus rugosis, lineâ dorsali antice impressâ postice foveolatâ, basi prope angulos posteriores foveatâ. Elytra cyaneo-nigra, suturâ viridi; utrinque undecim foveis rotundatis albis notata. Subtus aneo-viridis, abdominis lateribus albo-maculatis. Variat colore omnino cyaneo-nigrâ.

Head and thorax shining green. Elytra cyaneous-black, with the suture green; each with eleven round white spots. Beneath green, with the sides of the abdomen spotted with white.

Head rugose. Thorax with its front margin produced in the middle. Sides strongly angulated about the middle, the angle rounded. Surface deeply and remotely punctured on the disk, rugose on the sides; dorsal line impressed in front, being formed by numerous confluent punctures. At the base, just above the scutellum, is a round fovea, and a larger one near each posterior angle. Elytra punctate-striate, each with about eleven round

green foveæ filled with white pubescence, apex of each bidentate. Beneath and legs punctured. Varies to a dull black all over, excepting the white foveæ.

Length 11 lines; breadth 4 lines.

Hab.—Babuyanes. Variety from Luzon. Should precede *multipunctata*, H. Deyr.

Dicercomorpha albosparsa, Lap. & Gory.

Mon. i., Bupr. p. 39, pl. x. fig. 47.

Hab.—Bohol, Mindanao.

Varies to a beautiful steel blue.

Dicercomorpha inæqualis, H. Deyr.

Ann. Soc. Ent. Belg. viii. p. 56.

A beautiful variety, with the thorax and head of a bright coppery colour. One specimen only.

Hab.—Luzon.

Dicercomorpha viridula, Oliv.

Ent. ii. gen. 32, p. 27, pl. x. fig. 112.

Hab.—Luzon and Mindanao. Three specimens.

I have no doubt that Olivier's description and figure refer to this species. In the Berlin museum there are two species represented by single specimens, which I believe to be Olivier's types, viz., *B. lateralis*, Oliv. and *B. viridula*, Oliv.; they both come from Hagen's collection, and have the above names to them, and agree with the descriptions and figures. Olivier quotes the collection of Gigot d'Orey. It is possible, however, that they may have passed into Hagen's hands. I have never seen Olivier's names used for these species elsewhere.

Pæcilonota Semperi, E. S.

Cupreo-micans, thorace valde et rugose punctato, lineâ dorsali elevatâ. Elytris confertissime punctatis et punctato-striatis, maculâ scutellari, et utrinque maculis tribus discalibus cyaneis. Subtus aureo-cuprea, tibiis viridibus.

Bright fiery copper-colour. Head coarsely punctured, with a deep impression above the mouth somewhat of a triangular shape. Thorax largely and closely punc-

tured, with a smooth, raised dorsal line. Sides rounded, base bisinuate. Elytra closely and rugosely punctured, especially at the sides, and punctate-striate, with a small spot just below the scutellum, common to both, and three spots on each arranged in a longitudinal line, cyaneous. Sides slightly sinuate above the middle, finely and regularly denticulate posteriorly. Beneath coppery-golden, largely punctured; legs green.

Length 6 lines; breadth $2\frac{1}{2}$ lines.

Hab.—Luzon. One specimen without tarsi or antennæ.

A very beautiful and distinct species.

Castalia obsoleta, Chevr.

Revue Zool. 1841, p. 221.

Hab.—Luzon and Bohol. Several specimens.

Var. *inornata*, Chevr.

Hab.—Luzon and Bohol. Several specimens.

Acmæodera stictipennis, Lap. & Gory.

Mon. i., Acm. p. 26, pl. viii. fig. 45.

Hab.—Luzon. Several specimens.

Belionota sagittaria, Eschs.

Zool. Atlas, p. 9, pl. iv. fig. 5.

Hab.—Babuyanes, Mindanao, Leyte, Bohol.

In some specimens the scutellum is concolorous with the elytra or nearly so.

Belionota fallaciosa, H. Deyr.

Ann. Soc. Ent. Belg. viii. p. 84.

Hab.—Babuyanes, Bohol, Leyte, Mindanao.

Chrysobothris pictiventris, E. S.

Caput cupreum, antice depressum, circulariter striatum. Thorax transversim rugosus, fusco-cupreum, angulis posticis aureis, lateribus sinuatis; clytra purpureo-fusca, utrinque maculâ basali fasciâque ante medium in margine laterali conjunctis cæruleo-viridibus, post medium maculis duabus minutis viridibus, ornatis. Subtus viridis, lateri-

bus cupreis, pedibus cupreis, femoribus in basi viridibus, tarsis cyaneis.

Head coppery, face depressed, flat, bordered above by a straight ridge, concentrically striate with scattered punctures between the striae. Vertex closely punctured. Thorax transversely rugose and deeply punctured, dark copper-coloured; anterior margin green at the sides; posterior angles golden, obtuse; sides sinuate in the middle; base deeply bisinuate. Scutellum green. Elytra evenly punctured all over, purplish-brown, each with a blue-green spot on the base, starting from a fovea in the middle, then covering the shoulder and extending along the side, not quite to the middle; thence it is produced on to disk and ends in a slight round fovea. There are also two very small, round, green impressions placed side by side about midway between the middle and the apex; lateral margins denticulate posteriorly, with a slight green tinge. Beneath bright shining green, sides coppery. Legs coppery, base of the femora green; tarsi cyaneous.

Length 7 lines; breadth 3 lines.

Hab.—Camiguin de Mindanao, Mindanao.

Should precede *Cupricollis*, H. Deyr.

Chrysobothris octonotata, E. S.

Caput antice impressum, circulariter striatum. Thorax transverse rugosus, angulis truncatis, posticis igneo-rubris. Elytra punctata, fusca, utrinque impressionibus quatuor viridibus impressa. Subtus punctata, medio viridi, lateribus aeneis.

Head bronzy-green, sparingly covered with white hairs, depressed in front, the depression concentrically striate and remotely punctured between the striae; forehead projecting, deeply punctured. Thorax bronzy, transversely rugose, and punctured, nearly square, with all its angles truncate, the posterior ones fiery red; base deeply bisinuate. Scutellum green. Elytra finely punctured, brown with purplish reflections, each with a small round fovea at the base, another just above the middle, and two more placed side by side midway between the middle and the apex, green; the last two have rather a more coppery tint than the others; posterior margin denticulate. Beneath punctured, bronzy on the sides, green down the middle. Legs bronzy, femora green on the sides next the body.

Length $6\frac{1}{2}$ lines; breadth 3 lines.

Hab.—Luzon.

Chrysobothris philippinensis, E. S.

Capite thoraceque cupreis, hoc margine anteriori viridi. Elytris æneo-fuscis utrinque tribus foveolis viridibus ornatis; margine postice denticulatâ. Subtus punctata, lateribus cupreo-fuscis, in medio viridis, femoribus anterioribus subtus viridibus.

Head and thorax coppery, front margin of the latter green; the former in the ♂ green in front. Scutellum green. Elytra bronzy-brown, each with three small green foveæ. Beneath and legs coppery-brown, middle of body and extreme base of each thigh green. Tarsi cyaneous. Head punctured, covered with white hairs, forehead much produced, face depressed, concentrically striate and punctured. Thorax transversely rugose and punctured, angles slightly truncate, base deeply bisinuate. Elytra punctured, each with three round, small foveæ, one at the base, the second just about the middle, the third near the lateral margin, about midway between the second and the apex; posterior margin denticulate. Beneath punctured, sides covered with white hairs.

Length $5\frac{1}{4}$ lines; breadth $2\frac{1}{4}$ lines.

Hab.—Mindanao, Bohol.

Varies much: the specimen from Bohol has the thorax almost of the same colour as the elytra, which are of a more bronzy tint than in the typical form.

Chrysobothris ventralis, E. S.

Obscure æneo-fusca. Capite antice cupreo, circulariter striato. Thorace transverse rugoso, angulis truncatis, basi profunde bisinuatâ. Elytris punctatis, utrinque foveolis rotundatis aureis tribus notatis. Subtus lateribus cupreo-fuscis, medio viridi.

Dull bronzy-brown; head with a coppery tinge, covered with rather long white hairs; forehead deeply and closely punctured, much produced, terminating in front in an almost straight line; face flat, concentrically striate, and punctured between the striæ. Thorax nearly square, with angles truncate, base deeply bisinuate, surface transversely rugose and punctured. Elytra punctured, once and three-quarters as long as wide, each with three small, round, golden foveæ, one at the base, the second just above the middle, and the third midway between the second and the apex but rather nearer the lateral margin; posterior mar-

gin denticulate. Beneath punctured, with the sides coppery-bronze colour, middle bright green; antennæ coppery.

Length $6\frac{1}{4}$ lines; breadth $2\frac{3}{4}$ lines.

Hab.—Luzon.

Closely allied to *Indica*, L. & G., but differs in the shorter, squarer thorax, the more coppery face and the coppery antennæ.

Coræbus cælestis, E. S.

Purpureo-cyaneus, viridi-micans. Scutello cupreo-purpureo. Elytrorum apice multispinoso. Subtus æneus, abdominis lateribus albo-maculatis.

Bright cyaneous, shining, with purple and green tints in certain lights. Scutellum coppery-purple colour. Head produced between the eyes and narrowly but deeply channelled. Thorax vermiculate in front, largely punctured posteriorly, disk much raised and very convex, sides narrowly depressed, lateral margins very finely crenulate. Elytra very finely punctured, each with a very obsolete raised line down the middle, especially evident near the apex; sides each with three very faint impressions, giving them a sort of undulated appearance; lateral margins very finely crenulate, apex of each truncate, with six spines, of which the second and third from the suture are farthest apart. Beneath bronzy, rugosely punctured, each side of the abdomen with four small, round, white, pubescent spots.

Length 7 lines; breadth $2\frac{3}{4}$ lines.

Hab.—East Mindanao.

Should follow *violaceipennis*, E. S.

Coræbus Cisseoides, E. S.

Viridi-aureus. Thorace valde punctato, lateribus ochraceo-pilosis. Elytris utrinque maculis quinque albidis ornatis, apicibus rotundatis. Subtus punctatus, lateribus ochraceo-pilosis.

Head and thorax bright golden-green, very coarsely and closely punctured, the former impressed between the eyes, the impression filled with white pubescence, the latter with the sides widely depressed and ochraceous pubescent, lateral margins very finely crenulate. Base deeply bi-

sinuate. Scutellum cordate, impunctate. Elytra punctured, of the same colour as the thorax at the sides, but rather greener on the base and suture, each with five small round spots of a whitish pubescence, situated, three on the suture, of which two are below the middle, and one about a third of the entire length of the elytra from the base, the remaining two are placed near the lateral margin; one just about the middle, the other, a very small one, midway between it and the apex, almost on the margin; lateral margins very finely crenulate, becoming denticulate near the apex, which is slightly truncate, with the angles rounded. Beneath and legs bronzy, rugosely punctured, sides ochraceo-pubescent.

Length $5\frac{1}{2}$ lines; breadth $2\frac{1}{2}$ lines.

Hab.—East Mindanao.

Very like an Australian *Cisseis*. Should follow the preceding.

Coræbus pullatus, E. S.

Niger, thorace concentrice vermiculato, lateribus late depressis, niveis. Elytris minute rugosis, sparsim albobrilliosis, post medium fasciâ latâ in medio nigro-maculatâ, ad apicem fasciâ minutissimâ, albidis ornatis, apice late rotundato. Subtus æneus, lateribus albobrilliosis.

Black. Head punctured deeply and triangularly impressed between the eyes. Thorax concentrically vermiculate; disk convex, with a few scattered hairs on it. Sides regularly rounded, widely depressed, and covered with white hairs; the pubescence extends also along the base, which is deeply bisinuate. Elytra with fine scale-like rugosities, slightly sinuate on the sides, apex largely rounded and denticulate, here and there with irregularly-disposed white pubescence, especially at the base; about midway, between the middle and apex, is a broad white pubescent band, with a naked spot in its middle on the suture; there is also a very small white band on each, just above the apex. Beneath and legs bronzy, coarsely punctured down the middle, finely punctured and white pubescent on the sides.

Length 5 lines; breadth 2 lines.

Hab.—Luzon (1,750 feet high).

Most like *retrolatus*, H. Deyr., of any species I know, which it should follow.

Coræbus melibæiformis, E. S.

Viridis aut viridi-cyanæus. Capite antice valde et late sulcato. Thorace convexo, punctato, lateribus postice depressis, marginibus crenulatis. Elytris rugulosis, apicibus rotundatis, denticulatis. Subtus viridis punctatus, pilis brevibus ochraceis obsitus.

Green, or greenish-blue. Head produced in front beyond the eyes, and then widely and deeply channelled, and covered with short curved hairs, which are hardly visible in some places, except from the side. Thorax finely squamo-rugose, shortly pubescent, disk very convex and regularly rounded, sides narrowly depressed in front, widely at the posterior angles; the depression extending along the base to about the middle; lateral margins finely crenulate; lateral carina short and much curved. Elytra squamo-rugose, shortly pubescent; apex rounded, finely denticulate. Beneath punctured, covered with short ochraceous hairs.

Length $3\frac{3}{8}$ lines; breadth $1\frac{1}{2}$ line.

Hab.—Luzon.

A short convex species, something in shape like some of the Cape species of the *Melibæus crassus* group; should precede *elatus*, Fab.

Coræbus hastanus, L. & G.

Three specimens of the usual blue-green form, and three of a golden-green colour, with rather longer somewhat convergent spines to the apex of the elytra. I can, however, see no character sufficient to make this form into a species. I believe Monsieur Henri Deyrolle's *C. bajulus* will also prove a mere variety of this variable species.

Hab.—N. E. Luzon. Var. *E. Mindanao*.

Cryptodactylus philippinensis, E. S.

Niger, pubescens, fasciis albis ornatus.

Allied to the two species described by H. Deyrolle, and I almost hesitate to propose it as distinct. It differs in having the markings more distinct, each elytron having a distinctly marked circular spot near the middle, and the apical band being much more deeply jagged.

The markings of the elytra are arranged thus: a zigzag band at the base; a somewhat circular ring near the middle, and two zigzag bands between it and the apex.

There is a variety from Bohol, in which the markings are still brighter, and the apical zigzag bands closer together.

In some specimens the disk of the thorax is entirely black; in some it is marked with three grey spots. The sides have always grey pubescent bands.

Hab.—Luzon, Bohol.

Toxoscelus rugicollis, E. S.

Purpureo-aneus, thorace foveolato, lateribus rotundatis postice attenuato. Elytris maculis quibusdam supra medium, et postice fasciis duabus valde sinuatis, griseis ornatis. Subtus punctatus.

Bronzy, with a purplish tint. Head concentrically rugose and punctured, with a small round impression near the vertex. Thorax with the sides much rounded in front, and then converging rapidly in nearly straight lines to the base, which is deeply bisinuate. Surface concentrically rugose and punctured, with an oval transverse depression on the disk below the anterior margin, and a rather large somewhat kidney-shaped impression, just above the base, near each posterior angle; there is also a very slight depression near the front angles. Elytra much wider than the base of the thorax, sides sinuate, apex rounded, each with a band near the base, a round spot near the suture and an oval one at its side, above the middle, and two strongly zigzag bands; one just below these, the other midway between it and the apex, grey pubescent. Beneath and legs punctured, posterior tibiae hairy along their outer margin.

Length $2\frac{1}{4}$ lines; breadth $\frac{3}{4}$ line.

Hab.—Central Luzon.

Should follow *T. undatus*.

Sambus auricolor, E. S.

Capite thoraceque aureis, hoc lateribus late depressis. Elytris aneis, aureo-pilosis, maculis quibusdam fasciâque post medium, denudatis. Subtus punctatus, albo-sericeus.

Head and thorax golden, punctured, the former with a deep depression on the vertex, the latter with the disk raised and rounded, the sides widely depressed. Surface finely squamo-rugose, in some places with golden hairs. Elytra bronzy, densely gold pubescent, two spots on the

suture above the middle, a transverse band below the middle, two spots or an interrupted band between this and the apex, and the apex itself, naked. Sides subparallel above the middle, widely rounded posteriorly. Beneath punctured, covered with fine adpressed white hairs.

Length $2\frac{3}{4}$ lines; breadth $1\frac{1}{6}$ line.

Hab.—Samar.

A very distinct species. Should follow *amabilis*.

Sambus lugubris, E. S.

Capite thoraceque æneo-nigris. Thoracis lateribus subcupreis, pilosis. Elytris nigris, fasciis pilosis albidis ornatis. Subtus punctatus.

Head bronzy-black, punctured, covered with yellowish hairs, especially above the mouth. Thorax bronzy-black, with its sides more or less coppery. Anterior margin very narrowly raised, sides straight or nearly so in their middle, with the angles very largely cut off, so as almost to give them the appearance of being regularly rounded. Disk raised, with a few scattered hairs. Sides widely depressed, densely covered with a yellowish pubescence; lateral carinæ long. Elytra black, each with a somewhat ring-shaped spot at the base, two irregular bands placed close together above the middle, and two distinct bands just above the apex, covered with white hairs, mixed with yellowish-brown ones; the second band from the apex is almost entirely of the latter colour. The apex is widely rounded. Beneath and legs punctured bronzy, covered with white adpressed hairs.

Length $2\frac{1}{8}$ lines; breadth 1 line.

Hab.—Bohol.

Should follow the preceding.

Agrius occipitalis, Esch.

Entom. p. 135.

Apparently common.

Hab.—Mindanao, Bohol, Luzon.

Agrius æquicollis, Esch.

Entom. p. 134.

Hab.—Camotes, Bohol.

Agrilus ornatus, H. Deyr.

Ann. Soc. Ent. Belg. viii. p. 155.

Varies from the typical form in having the thorax bright copper-coloured and the apex of the elytra brighter.

Hab.—N. Luzon; Babuyanes.

Agrilus acutus, Thunb.

Mus. Nat. Ac. Ups. iv. p. 52.

Two specimens of the small green form described by Fabricius under the name *spinosus*.

Hab.—Central Luzon.

Agrilus Semperi, E. S.

Capite thoraceque cyaneis. Elytris antice æneis, postice cyaneis, apice utrinque valde bidentato, inter dentes aliquando denticulato. Abdominis lateribus supra albo-maculatis.

Head and thorax cyaneous, punctured and concentrically striate, the former with a small patch of silvery hairs just above the mouth. Thorax with the front margin much produced and the sides straight; there is a slight depression on the disk just below the anterior margin, a strong impression on the sides and a slight one along the base; lateral carinæ very short and curved. Elytra bronzy or bronzy-golden at the base, suture and posterior two-thirds purple; along the suture, about the middle, is an elongate streak of white hairs, and there is a small spot of the same at the extreme apex. Apex strongly bidentate and obliquely truncate: between the larger teeth are two or three irregular smaller ones. Sides of abdomen above, each with a small white spot. Beneath cyaneous, with rather a leaden tint, covered with fine white depressed hairs.

Length 5 lines; breadth $1\frac{1}{8}$ line.

Hab.—Luzon.

Should precede *ciliatipes*, H. Deyr.

Agrilus rubifrons, H. Deyr.

Ann. Soc. Ent. Belg. viii. p. 164.

One specimen of a variety with a basal spot to the elytra, bearing out the following observation of Deyrolle's:—

“Je ne serais pas étonné qu'il y eut des exemplaires

avec un petit point jaune dans l'impression basilaire des élytres, attendu qu'à la loupe j'aperçois quelques petits poils de cette couleur en cet endroit."

The basal spot, however, is rather a large one, and the general colour of the insect is lighter, and the head is of a golden-coppery colour.

Hab.—E. Mindanao.

Agrilus abdominalis, E. S.

Caput purpureo-æneum, sulcatum, in sulco vittâ flavo-pilosâ ornatum. Thorax obscure æneus, lateribus utrinque aureo-pilosis. Elytra purpureo-ænea, maculâ parvâ basali aureâ ornata, apice denticulato, rotundato. Abdominis lateribus supra aureo-bimaculatis. Subtus æneus, pectoris lateribus, maculisque duabus utrinque abdominalibus, aureo-pilosis.

Head bronzy-purple, deeply sulcate, with a narrow line of flavous hairs down the impression. Thorax bronzy, transversely rugose, front margin rounded; sides impressed, the impressions filled with golden hairs, forming an elongate spot. Elytra bronzy-purple, finely squamo-rugose, with the apex of each rounded and denticulate. At the base there is a small round golden spot on each; sides of the abdomen, above, projecting considerably beyond the elytra, and each bearing two golden spots. Beneath bronzy, covered with short white hairs; a spot on each side of the breast, and a spot on each side of the second and third abdominal segments, covered with bright golden hairs.

Length 4 lines; breadth $1\frac{1}{4}$ line.

Hab.—N. E. Luzon.

Should follow *rubifrons*, H. Deyr.

Agrilus nigro-cinctus, E. S.

Caput antice viridi-æneum. Thorax obscure æneus, lateribus subaureis. Elytra viridi-ænea, postice fasciâ nigrâ ornata. Sutura antice et postice albo-pilosa, apice valde bidentato.

Head produced in front in a square form; slightly channelled, face deeply punctured bronzy-green. Thorax dark bronzy colour, the lateral margins narrowly golden. Surface transversely rugose, depressed at the base and posterior angles. Elytra bronzy-green, with a wide

band behind the middle nearly black, the suture above and below the band white pubescent. Apex strongly bidentate; the inner tooth, which is situated some little distance from the suture, is the longer. Beneath coppery, finely white-haired.

Length 3 lines; breadth $\frac{1}{2}$ line.

Hab.—W. Mindanao.

Should follow *cyanicollis*, H. Deyr.

Agrilus inquinatus, E. S.

Æneo-aureus, capite vertice impresso. Thorax valde transversim rugosus. Elytra brevissime albo-pilosa, maculâ rotundatâ suturali postice ornata, apice bidentato. Subtus punctatus.

Somewhat allied to the preceding. Bronzy-golden. Head deeply impressed on the vertex. Thorax much produced in front, sides straight. Surface very strongly transversely rugose, with a distinct dorsal impression, and a slight impression on each side in front above the lateral carina, which is long and rather straight. Elytra covered with fine white short hairs, with a small naked round sutural spot, behind the middle. Apex bidentate. Beneath punctured, shining, with a few silvery hairs.

Length $2\frac{3}{4}$ lines; breadth $\frac{1}{2}$ line.

A very pretty and distinct species.

Hab.—W. Mindanao.

Should follow *viridieneus*, H. Deyr.

Agrilus pilicauda, E. S.

Cyaneus, capite antice aureo; elytris utrinque maculâ ante medium, maculâ post medium, maculâque apicali niveis, apicibus rotundatis, denticulatis. Abdominis lateribus supra utrinque maculâ albâ ornatis. Subtus punctatus, albido-pilosus.

Head and thorax cyaneous; the former golden in front, swollen between the eyes and channelled. Thorax punctured and concentrically striate, front margin produced and rounded, sides nearly straight, base bisinuate. Disk raised, surrounded by an impression commencing at the anterior angles, and continued round the base. There is also a slight depression just below the middle of the front margin. Elytra rather darker in colour than the thorax, finely squamo-rugose, and covered with very short grey

hairs, each with three white pubescent spots down the middle; one placed above the middle, the second midway between the middle and the apex, and the third on the apex. Apex rounded, denticulate. Sides of the body above each with a white spot. Beneath punctured, covered with grey pubescence. Apex of body with long projecting hairs.

Length $3\frac{1}{2}$ lines; breadth $1\frac{1}{8}$ line.

Hab.—Bohol.

I have a single specimen of what I believe is only a variety of this species, which is bright green with blue tints.

Hab.—N. E. Luzon.

Should follow *marmoreus*, H. Deyr.

Agrilus pulcher, E. S.

Viridi-cyaneus. Thoracis basi depresso. Elytris fasciâ latâ postice apiceque albo-pilosis, apice rotundato denticulato. Subtus æneus, albo-pilosus.

Cyaneous-green. Head swollen on the vertex, punctured; eyes margined interiorly by a single row of long curved white hairs. Thorax deeply and concentrically striate, sides posteriorly and base depressed. Front margin produced and rounded; sides nearly straight, base slightly bisinuate. Elytra squamo-rugose, covered with short, scarcely visible grey hairs, with a rather wide white pubescent band below the middle, and a spot at the apex of the same colour. Apex of each rounded and denticulate. Beneath bronzy, covered with short white hairs.

Length $2\frac{1}{2}$ lines; breadth $\frac{3}{4}$ line.

Hab.—W. Mindanao.

A short, stout species, and very distinct.

Should follow the preceding.

Agrilus vilis, E. S.

Capite thoraceque obscure æneis, hoc angulis posterioribus lateribusque viridi-æneis. Elytris viridi-æneis dense albo-pilosis, apice rotundato.

A small narrow species. Head dark bronzy, impressed on the vertex, and with some short silvery hairs just above the mouth. Thorax of the same colour as the head, with the sides and hind angles bronzy-green, deeply punctured and transversely rugose, base with a median depression;

sides also slightly impressed in front: lateral carinae very slightly curved. Elytra bronzy-green, finely squamose, covered with short adpressed white hairs. Apex rounded, finely denticulate. Beneath shining, punctured, covered with short white hairs.

Length $2\frac{1}{4}$ lines; breadth $\frac{1}{2}$ line.

Hab.—W. Mindanao.

This species has an almost European appearance.

Should follow *hypocritus*, H. Deyr.

Trachys princeps, E. S.

Læte cyanea, subconvexa, humeris prominentibus. Elytris postice fasciâ latâ albo-pilosâ ornatis. Subtus aenea.

Bright blue; head excavated between the eyes. Thorax short, with a few scattered white hairs on the surface; base deeply lobed in the middle, and with a smaller lobe on each side. Elytra with the shoulders prominent, moderately convex. Sides rounded. Apex widely rounded, above which is a wide white pubescent band, the pubescence extending some little way along the suture, towards the base. Beneath bronzy, first four joints of the tarsi and their lamellæ testaceous.

Length $2\frac{1}{8}$ lines; breadth $1\frac{1}{2}$ line.

Hab.—Central Luzon.

By far the finest species I have ever seen of this group, in colour almost equalling some of the brilliant species of *Brachys* from S. America.

Should head the genus.

Trachys dubia, E. S.

Obscure aenea. Elytris tribus fasciis valde sinuatis ornatis.

I have only one very bad example of this species. The thorax has scattered white hairs over it, and the base is regularly bisinuate. The elytra are covered with very short grey hairs, and have three very narrow zigzag bands of white silvery hairs across them, one situated above the middle, the other two rather close together, about midway between the middle and the apex. Sides without carinae.

Length $1\frac{1}{2}$ lines; breadth $\frac{5}{8}$ line.

Hab.—Bohol.

XII. *On some new species of South African Lycænidæ.*
 By ROLAND TRIMEN, F.L.S., &c., Curator of
 the South African Museum.

[Read 2nd March, 1874.]

THE Butterflies described in this paper are all natives of the region lying to the South of the Tropical limit. The six species belong to four genera, and have been named as follows, viz.:—

- Iolus Mimosæ,*
Hypolycæna Seamani,
Aphnæus namaquus,
Zeritis Lycegenes,
 „ *Barklyi,*
 „ *Orthrus.*

Aphnæus namaquus and *Zeritis Barklyi* are very different from the other species of their respective genera, and are noteworthy as coming from a tract of the Cape Colony hitherto very little known to naturalists, viz., the North-Western corner of Little Namaqualand, which has recently been opened up by the Cape Copper Mining Company, making Port Nolloth its port of shipment and connecting it by railway with the mines lying inland. My visit to this district was limited to thirteen days in August last—a season of the year too early for much development of insect life—and was, moreover, chiefly taken up with rapid travelling; but the discovery of the two new butterflies in question, and the fact that four other species of the same family presented more or less strongly marked variation from the corresponding forms met with in the more Southern districts, convinced me that the country was one that would well repay more extended research than I could give it.*

* Sir H. Barkly's simultaneous discovery in the same limited region of so conspicuous a botanical novelty as a scarlet-flowered *Melianthus*, besides two (if not three) new Ferns, and probably one new *Stapelia*, at least, serves to indicate how much yet remains to be found there in the way of plants.

Iolau Mimosæ is remarkable for its dull-grey underside, and for the very little difference between the sexes. *Hypolycaena Seamani*, on the contrary, is almost as white beneath as are most of the *Iolai*, and the black and white upperside of the female differs most strikingly from the purple one of the male. *Zeritis Orthrus* has none of the usual fulvous colouring on the upperside, and is the most sombre-tinted member of its genus, with the exception of *Z. Leroma*, Wallengren.

Family LYCÆNIDÆ, Leach.

Genus IOLAUS, Hübn.

Iolau Mimosæ, n. sp. (Pl. II. figs. 1 and 2.)

Exp. (♂) 1 in. $2\frac{2}{3}$ lin.; (♀) 1 in. 3— $4\frac{1}{2}$ lin.

♂. *Glossy pale-blue, with fuscous-grey borders.* *Forewing*: costa from base rather widely bordered with pale-grey, diminishing to a point about middle; extreme costal margin very narrowly edged with ochreous; apical border very broad, commencing just at extremity of discoidal cell, but somewhat abruptly narrowing on 2nd median nervule, whence the hind-marginal border to anal angle is not wide; sexual tuft on inner margin thin, dark-grey. *Hindwing*: costal and apical margin narrowly, hind margin very narrowly edged with fuscous-grey; two usual hind-marginal spots black, that on anal-angular lobe superiorly edged with greenish-silvery, and partly encircled with dull white; between the two spots, a third lunulate one, immediately preceded by a whitish mark, which is itself preceded by a faint fuscous one; inner margin rather widely pale-grey, hoary towards base; sexual badge near base conspicuous, consisting of a fuscous spot in a shining grey ring. **UNDERSIDE.**—*Soft pale-grey, with thin ferruginous-ochreous striæ*; in both wings, a short stria closing discoidal cell, and two long ones beyond middle, of which the inner is continuous and well defined, the outer sub-lunulate and rather faintly marked; *between these two striæ some white suffusion*, in *forewing* only towards inner margin, but in *hindwing* from costa to inner margin. *Hindwing*: before middle, a third stria, irregular and angulated, well defined, extending from precostal to sub-median nervule; first stria beyond middle very irregular, almost meeting the outer one between 1st median nervule and sub-median

nervure, where it is sharply deflected; a little before its inner-marginal extremity, a small detached marking of the same ferruginous-ochreous; between the two hind-marginal spots some rather conspicuous greenish-silvery scaling.

♀. *Very similar to ♂; the blue scarcely duller; the fuscous bordering rather darker, and in parts broader or narrower. Forewing:* costal grey less pronounced, mixed with fuscous; apical border not so wide, not reaching to extremity of cell; hind-marginal border rather wider, especially at anal angle. *Hindwing:* costal and apical border darker and considerably broader; a sub-marginal and a hind-marginal row of faintly marked fuscous spots, the latter row in line with the usual three black spots, which are more strongly marked than in the ♂. **UNDER-SIDE.**—Quite as in ♂, but slightly duller in tint, inclining to brownish, and with the white clouding beyond middle less distinct.

This species should be placed next to *I. Ceres*, Hewits. (*Ill. D. Lep. Lycæn.* ii. p. 39, pl. xvii., f. 63), recorded as a native of the Zulu Country. Mr. Hewitson does not figure the upperside of the species named, and his description of that surface is too brief and general to be of service, but judging from his figure and description of the underside, *I. Mimosæ* differs in being wholly devoid of any rufous tinge or brown basal clouding; in having the transverse striae beyond middle more regular and closer together; in wanting altogether the conspicuous lunular streak in the discoidal cell of the forewings; and in possessing a continuous transverse stria before the middle of the hindwings, instead of one broken into six or seven portions; and in wanting the conspicuous orange lunule which adjoins the upper hind-marginal spot of the hindwings.

Mr. Henry I. Atherstone sent me two females of this butterfly as long ago as the end of 1863, having taken them at Rockdale and New Year's River, near Grahamstown, in August and November of that year. From the circumstance of finding one of them in company with *I. Bowkeri*, mihi, Mr. Atherstone imagined the two to be sexes of one species. In 1865, Mr. J. H. Bowker sent a male from the neighbourhood of the Tsomo River, in Kaffraria Proper, and noted its frequenting *Acacia* trees, and, like *I. Bowkeri*, having the habit of lighting in among the branches and settling on dry twigs, where

it was easily taken with the fingers.* This is the only ♂ of the insect that I have seen, but three others, ♀s, have reached me from Mrs. Barber, one taken near King William's Town by Miss Fanny Bowker in 1869, and the others by Mrs. Barber herself, while travelling through the North-Eastern portion of the Colony, in 1872. Mrs. Barber confirms her brother's account of the habits of *I. Mimosæ*, and adds that both it and *I. Bowkeri* chiefly haunt the mistletoe (*Loranthus* sp.), which so generally infests the mimosa trees.

Hab.—Grahamstown and King William's Town, Cape Colony; Tsomo River, Kaffraria.—In the collection of R. Trimen.

Genus HYPOLYCÆNA, Felder.

Hypolycæna Seamani, n. sp. (Pl. II. figs. 3 and 4.)

Exp. (♂) 1 in. $1\frac{1}{2}$ lin.; (♀) 1 in. 3 lin.

♂. *Richviolaceous-purple*. *Hindwing*: a hind-marginal black line from 2nd median nervule to anal angle, immediately preceded by a concurrent pure white line—the latter widening into a white space on anal-angular lobe; two very indistinct dark spots just before the white line, one above, the other below 1st median nervule; a third spot, black, densely scaled with silvery-bluish and golden scales, on anal-angular lobe, edged interiorly and exteriorly with pure white; tails at extremities of 1st median nervule and sub-median nervule respectively (of which the latter is nearly twice as long as the former), thin, black, conspicuously fringed and tipped with pure white. *Cilia* of forewing apparently greyish, of *hindwing* pure white, both on hind and inner margin. *UNDERSIDE*.—*White*, with *thin yellow-ochreous striæ*; in both wings a short stria closing discoidal cell, and two transverse striæ (convergent downward, the outer one thinner and fainter than the inner) beyond middle. *Forewing*: the striæ beyond middle commence on costa but do not reach inner margin, ending a little below sub-median nervule. *Hindwing*: *elongate spot near base*, below precostal nervule, *red*; the outer and inner striæ meet below 3rd median nervule, but are thence independently deflected to inner margin; the outer

* In 1867, I observed this habit of *I. Bowkeri* among the stunted *Acacia horrida* in the dry upland country near Greytown, in Natal.

stria becomes fuscous near the point of meeting with the inner, and is thence black; the usual hind-marginal spots between 2nd and 1st median nervules and on anal-angular lobe respectively, the former black, inwardly bordered rather conspicuously with fulvous-yellow, the latter as on upperside; faint traces of a dusky line just before hind margin, which is itself very finely edged with black.

♀. *White, with broad fuscous clouding and borders.*

Forewing: fuscous basal clouding fills discoidal cell for about three-fourths of its length, and extends below it to inner margin, but does not reach beyond middle; fuscous border extends from base to anal angle, and is very broad in apical region; disco-cellular striæ indistinctly marked, and traces visible of the longer striæ beyond middle.

Hindwing: fuscous clouding in basal region fills cell and extends irregularly, beyond, above and below it, about to middle; the two underside striæ strongly marked, fuscous, suffused, *not* meeting, but widely separated, between 1st median nervule and sub-median nervure; some fuscous scaling near apex; hind-marginal and sub-marginal streaks and spots well marked. **UNDERSIDE**.—Quite as in ♂, except that, in the *hindwing*, the two striæ beyond middle, though approximating much more nearly than on upperside, do not meet.

This butterfly is a close ally of *U. Philippus*, Fab. In the ♂, it is distinguished by the *more purple*, less cupreous colour of the upperside, and the *conspicuous white cilia* of the hindwings; and in both sexes, by the *whiteness of the underside*, with its thinner, much straighter striæ, and by the longer tails of the hindwings.

The upperside of the ♀ is most strikingly different from the brownish-grey colouring of that of the ♀ *Philippus*, and the disparity is almost as remarkable as that between the ♂s of *Sithon Batikeli*, Boisd., and *S. Diocles*, Hewits., the ♀s of which can scarcely be distinguished except by one or two slight characters that would escape a cursory comparison.

A single ♀ specimen was sent me from Pinetown, Natal, by the late Dr. J. E. Seaman, and a ♂ by Mr. Walter Morant, towards the end of 1869. Both were rather damaged, and I have hitherto deferred describing the species in the hope of getting more perfect examples, but have seen no others up to the present time. Dr. Seaman noted the ♀ as having been taken in July, "at an opening in the bush;" and Mr. Morant described the ♂ as occurring

in June "on small trees by the waterside," and further observed, with reference to the ♀ sent by Dr. Seaman (which he did not recognize as of the same species as the ♂ sent by himself),—"This is very scarce: I have a single specimen in my collection, taken *on a low tree near water*" (see note on ♂ above) "about two years ago, since which time I have seen but one other." Mr. E. C. Buxton has lately sent me an unmistakeable photograph of a ♀, taken by him in the Amaswazi Country.

I have named this species in memory of my late most kind and valued correspondent, Dr. John Eglinton Seaman, an excellent observer in many branches of Natural Science. As one of the original promoters and as secretary to the Natural History Association of Natal, Dr. Seaman did good service in advancing the knowledge of South-African zoology and botany, and was invariably most generous and unselfish in placing both specimens and observations at the disposal of other naturalists. Some of his valuable notes on the larvæ and pupæ of Natalian Lepidoptera are already in my hands, and I have reason to hope that, through the kindness of my friend, Mr. W. D. Gooch, of Spring Vale in Natal, I may receive other material amassed in the course of Dr. Seaman's investigations.

Hab.—Pinetown, Natal.—In the collections of W. Morant and R. Trimen. Amaswazi Country.—In the collection of E. C. Buxton.

Genus APHNÆUS, Hübn.

Aphnæus namaquus, n. sp. (Pl. II. figs. 5 and 6.)

Exp. (♂) 1 in. 2—3 lin.; (♀) 1 in. 4½ lin.

♂. *Fuscous, with a vivid purple gloss. Forewing:* three rather narrow, yellow-ochreous markings, viz. a short, quadrate, cellular one, adjoining median nervure between origins of 1st and 2nd nervules, an elongate, curved, irregular streak beyond middle, from close to costa, as far as 1st median nervule, and a small sub-lunulate spot near apex, between upper radial and 3rd median nervules; the purple gloss covering inner-marginal region from base to hind margin, but not rising above median nervure or its 2nd nervule. *Hindwing:* purple extends from base to hind margin, between sub-costal nervure and its 1st nervule and sub-median nervure; on anal angular lobe two

blackish dots, scaled and ringed with silvery and whitish. Cilia white. **UNDERSIDE.**—*Silvery-white, with broad, dull ochreous-brown, centrally silver-streaked, black-edged bars and spots.* *Forewing:* a quadrate spot at base, leaving costal edge and median nervure very narrowly silvery-white; before middle, a short bar from costa to sub-median nervure; from about middle of costa a long oblique bar extending towards anal angle, but becoming obsolete just above sub-median nervure; a round spot on costa beyond middle; from costa, near apex, a much-curved bar extending to between 3rd and 2nd median nervules, where it abruptly and bluntly ends; a hind-marginal border of the same colour as the bars, commencing at apex and becoming obsolete about sub-median nervure, interiorly black-edged and rather sharply dentated, mesially traversed by an interrupted black line, edged with whitish on both sides. *Hindwing:* a basal and inner-marginal, sub-macular bar, externally presenting five blunt projections, extending to about middle; an irregular, oblique central bar (continuous of first bar of forewing) extending to a little before anal angle, where it is angulated backward to inner margin by an elongate usually separate portion; a large costal spot just before apex, in contact or confluent with a very strongly angulated bar, which, commencing just below apex, *touches or is confluent with the central bar* just beyond extremity of discoidal cell, and between 3rd and 2nd median nervules becomes confluent with a hind-marginal border similar to that of forewing; the traversing white-edged line of the hind-marginal border is more continuous than in forewing; black dots on anal-angular lobe more conspicuous than on the upper-side.

♀. *Without purple gloss, only presenting a slight violaceous suffusion from bases; yellow-ochreous markings strongly developed in both wings.* *Forewing:* the yellow-ochreous markings much enlarged and prolonged inferiorly, so that the first and second are widely confluent below 1st median nervule, and the second and third narrowly so between 3rd and 2nd median nervules; a faint yellow mark in cell, near base. *Hindwing:* the position of the silvery-white parts of the underside is roughly indicated by suffused markings of *yellow-ochreous*, viz., one in cell near base, one on costa near apex, one on hind-margin below apex, and one (largest) on median nervules, a whitish line close and parallel to hind margin scaled

with silvery on anal angular lobe. **UNDERSIDE.**—As in ♂, but the bars and spots proportionally narrower, leaving more of the silvery-white ground colour unoccupied.

(Described from ten ♂ and one ♀ specimens.)

This *Aphnæus* is a near ally of *A. Phanes*, mihi (*Tr. Ent. Soc.* 1873, p. 111, pl. i., figs. 4, 5), resembling the latter particularly in the silvery-white ground colour of the underside, and the great development of the yellow-ochreous bands on the upperside of the ♀. The chief difference of importance is presented by the *underside of the hindwing*, in which, instead of being rather even and almost parallel, the oblique bars are irregular and almost sub-macular, and the outer one is so strongly angulated as to be confluent with the inner one near the end of the discoidal cell. This arrangement breaks the silvery ground colour beyond the middle into three irregular markings, and gives the underside an appearance quite different from that of other *Aphnæi*. Other distinctions from *A. Phanes* are (in the ♂) the very undeveloped state of the ochreous forewing upperside markings, which in one example are very small and dull, and in another all but obsolete; and (in the ♀) the different arrangement of the hindwing upperside markings, which in both species follow, or correspond with the silvery-white portions of the underside. In both sexes, the very dark colouring of the spots and bars of the underside is a marked distinguishing feature.

I first met with this species under a thorn-tree (known as the "One Tree" in a wide expanse of country) a few miles from Annenous, on the line of railway laid down by the Cape Copper Mining Company, and afterwards on the road between Elboogfontein and Kockfontein; near the Komaggas Mission Station; and at Oograbies; but it was numerous at the latter place only. It has the short active flight of its congeners, but is less wary when settled. It usually rests on the bare twigs of some low shrub, with its head downward, and when disturbed will sometimes return to the same perch. The ♂ has a very dark, almost black appearance on the wing, but the only ♀ I met with had in flight more the look of *A. caffer*, mihi.

Hab.—Namaqualand, Cape Colony.—In the collections of the South-African Museum and R. Trimen.

Genus ZERITIS, Boisd.

Zeritis Lycegenes, n. sp. (Pl. II. fig. 7.)

Exp. $11\frac{1}{2}$ lin.

♀ (?). *Bright sub-metallic orange-red, hind-marginally edged with black; forewing only with black spots.* *Forewing*: an elongate, sub-ovate spot at extremity of discoidal cell; an indistinct, smaller spot below cell, close to origin of first median nervule; beyond middle a row of 6 spots, of which the first 3 (between costa and 3rd median nervule) are further from the base than the other 3 (between 3rd median nervule and sub-median nervule); costa narrowly edged with blackish, widening at apex; hind-marginal edging narrow, with slight projections between the nervules. *Hindwing*: no spots or other markings, except the hind-marginal edging, which emits prominent inter-nervular projections. **UNDERSIDE.**—*Hindwing and basal, costal and apical border of forewing, pale greyish-ochreous.* *Forewing*: besides markings of upperside (of which the spot below cell is conspicuous), there are 2 cellular spots, of which that nearer base is minute; 2 costal dots above and beyond the spot closing cell; and a sub-marginal row of 4 small sub-lunulate spots between lower radial nervule and sub-median nervule (traces of 2 spots commencing this row are just visible in the apical ochreous). *Hindwing*: 5 small, indistinct brown spots in basal region, viz. 2 close to costa (one near base, the other about middle), 1 in discoidal cell, 1 (elongate) closing cell, and 1 between 1st median nervule and sub-median nervule; a little beyond middle, a transverse, irregular, sub-macular brown streak, *not* parallel to hind margin, extending from near apex to sub-median nervule; a sub-marginal, very indistinct, deeply-festooned, brownish streak, touching the sub-macular streak on sub-costal nervules.

This little *Zeritis* is in character intermediate between *Z. Chrysaor*, mihi, and *Z. Lyncurium*, mihi. From the former it is separable by its smaller size, less metallic upperside, different arrangement of the discal row of spots in the forewings, and *total want of spots* in the hindwings, while on the underside the brilliant metallic spots of *Chrysaor* are scarcely indicated in the forewings, and the duller ones of the hindwings wanting. From *Z. Lyncurium* it differs on the upperside in its paler colouring, well-marked discal row of spots, and narrower hind-mar-

ginal border, in the forewings; and entire want of the broad basal, and especially costal, fuscous clouding, in the hindwings: but on the underside is very similar, differing chiefly in the discal row of spots in the forewings being much more regular.

The above description is made from the only example that I have seen, which was taken by Mr. Walter Morant near the Mooi River, in Natal, on the 15th September, 1870.

Hab.—Natal.—In the collection of W. Morant.

Zeritis Barklyi, n. sp. (Pl. II. figs. 8 and 9.)

Exp. (♂) 1 in. 4—4 $\frac{2}{3}$ lin.; (♀) 1 in. 4—5 $\frac{1}{2}$ lin.

♂. *Pale silvery-grey, spotless. Forewing:* an ill-defined, dull-fuscous, macular or sub-macular, hind-marginal border, forming rather a broad apical mark, but narrowing lower down, and usually more or less interrupted by the ground-colour or nervules. *Hindwing:* an elongate, ill-defined, apical, fuscous marking, lying between 1st sub-costal and radial nervules. **UNDERSIDE.**—*Hindwing and narrow border of forewing ashy brownish-grey; rest of forewing orange-red. Forewing:* grey border, widening slightly just before and at apex; a dark fuscous dash at base inferiorly edging median nervure; black spots in number and arrangement like those of *Z. Thyra*, Linn., and allies, viz. 3 white-centred cellular spots, a transverse, discal, irregular row of 6, of which the 4 upper are white-dotted interiorly, and two parallel sub-marginal rows of 7 each, of which the outer row is composed of very small spots indistinctly marking the inner edge of the hind-marginal grey border. *Hindwing:* the following indistinct, hardly sub-metallic, fuscous-edged, greyish spots, viz. 3 cellular (basal one minute, middle one near third), 2 supra-cellular (wide apart), 2 infra-cellular, and 6 sub-confluent, forming an irregular discal row; a sub-marginal row of 7 thin fuscous lunules, and a marginal one of 7 fuscous sub-lunulate spots (of which the three lower are well marked); between the two rows *one of pale orange lunular marks* (the 3 lower of which are usually well marked); on each side of the irregular discal row of spots *several more or less indistinct pale orange marks*. Cilia fuscous, varied between nervules with greyish-white.

♀. *Not so glossy; forewing with a sub-apical, pale orange-yellow, rounded patch. Forewing:* patch lies

between 3rd sub-costal and 1st median nervure, extending from extremity of discoidal cell, and bounded externally by the hind-marginal fuscous band (which is darker than in ♂, broad, even and not macular). **UNDERSIDE.**—As in ♂, but paler and duller throughout.

(Described from ten ♂ and three ♀ specimens.)

In structure and in the colouring and marking of the underside of the wings this species is plainly referable to the group of which *Z. Pierus*, Cram., may be considered as the type, but *the silvery-grey of the upperside* is a most striking distinctive character, quite unique in the genus. This peculiar colour is so pale that at first sight the expanded ♀, with its orange apical patch in the forewings, might almost be taken for a small, dull ♂ *Anthocharis* or *Callosune*. The underside markings combine to some extent the characters of *Z. Thyra*, Linn., and *Z. Pierus*, Cram., but the brownish-grey inclines much more to ashy than in either of the species named, and *the lunular and scattered marks of pale orange in the hindwings* are only found in *Z. Barklyi*.

I have named this butterfly after His Excellency Sir Henry Barkly, the governor of the Cape Colony, to whose kindness I owe the opportunity of visiting Namaqualand, and who first called my attention to the species as something unusual. It was on the 17th August, 1873, between Kockfontein and the Komaggas Mission Station, that the insect was first observed, settling on the small pink flowers of a species of *Mesembryanthemum* which carpeted the sides of the waggon-road. Other localities where it was subsequently seen were on the road from Komaggas to Spectakel; near Steinbokfontein (between Spectakel and Abbevlakte); and at Oograbies (about 15 miles inland from Port Nolloth). It is very conspicuous on the wing, the pale upperside (of the ♂ especially) flashing like silver in the sunshine. Though settling frequently on flowers and on the ground, it is by no means so easy of capture as most of its allies, being unusually wary of approach and swift in flight. While in motion it has much the appearance of a large, pale *Lycæna*, such as *L. Corydon*, Scop., or *L. Asteris*, Godt., but when it has settled its underside colouring renders it as inconspicuous as its near congeners in repose usually are. In the elevated, hilly country *Z. Barklyi* seemed to be rather widely dispersed, but was local in its haunts, being numerous in a few spots only—

on the sunny slopes of hills. In the flat, sandy country near the coast no examples were to be found.

Hab.—Namaqualand, Cape Colony.—In the collections of the South-African Museum and R. Trimen.

Zeritis Orthrus, n. sp. (Pl. II. fig. 10.)

Exp. 1 in. 2—3 lin.

♂. *Fuscous-grey, with pale grey sub-marginal markings. Forewing*: costa clouded with pale grey from base to near apex; a transverse sub-marginal stripe, ill-defined and somewhat dentated on its edges, extending from costa to 1st median nervule. *Hindwing*: between radial nervure and anal angle a narrow, sharply-dentated streak, of which the outward dentations reach the hind-marginal edge upon the extremities of the nervules. Cilia of the ground-colour, irregularly varied with pale grey. **UNDER-SIDE.**—*Hindwing, and costal, apical, and hind-marginal border of forewing, very pale creamy-grey, with sub-metallic spots; the markings generally almost identical with those of Z. Taikosama, Wlgrn. Forewing*: the 2 spots before middle, below median nervure and its first nervule, smaller and much more indistinct than in *Taikosama*, the white centre wanting in the inner spot in one example, in the outer spot in the other; the outer of the two sub-marginal rows of spots better marked than in *Taikosama*. *Hindwing*: the fourth row of spots (beyond middle) obsolete, only represented by some scarcely-traceable darker clouding, mixed with a few sub-metallic scales; a rather well-marked hind-marginal row of pale fuscous spots, ending with a black spot at anal angle; a little before the last-named spot a black dot.

This *Zeritis* resembles *Z. Leroma*, Wlgrn., in its total lack of any fulvous colouring on the upperside, but is easily distinguished by its pale grey markings. The underside colouring, though much paler, approximates to *Z. Orthrus* to *Z. Molomo, mihi* (*Trans. Ent. Soc. Lond.* 1870, p. 373, pl. vi. f. 9), but it wants the outermost (fourth) row of hindwing spots found in the latter, as well as the brown clouding between that row and the third. On the whole this new species stands nearest to *Taikosama*, Wlgrn., both in upperside and underside markings, but the singular colouring of the upperside stripes gives it a very distinct aspect.

The only examples I have seen, from which the foregoing description is made, are two taken by Mr. Walter Morant in Natal, on the 16th and 18th September, 1870, and labelled respectively "Bushman's River" and "Colenso."

Hab.—Natal.—In the collection of W. Morant.

EXPLANATION OF PLATE II.

The locality of each specimen figured is given after its name and sex.

Figs. 1 and 2.—*Iolaus Mimosæ*, Trimen, ♂ and ♀ (♂, Tsomo River, Kaffraria; ♀, Grahamstown, Cape Colony).

Figs. 3 and 4.—*Hypolycæna Seamani*, Trimen, ♂ and ♀ (Pinetown (?), Natal).

Figs. 5 and 6.—*Aphnæus namaquus*, Trimen, ♂ and ♀ (♂, Oograbies; ♀, Komaggas; Little Namaqualand, Cape Colony).

Fig. 7.—*Zeritis Lycegenes*, Trimen, ♀? (Mooi River, Natal).

Figs. 8 and 9.—*Zeritis Barklyi*, Trimen, ♂ and ♀ (♂, between Komaggas and Spectakel; ♀, Steinbokfontein, Little Namaqualand, Cape Colony).

Fig. 10.—*Zeritis Orthrus*, Trimen, ♂ (Bushman's River, Natal).

XIII. *Descriptions of new species of Lycænidae, from his own Collection.* By W. C. HEWITSON, F. L. S.

[Read 2nd March, 1874.]

FELDER'S genus *Pseudodipsas* contains insects of very different construction, and I propose to follow Mr. Moore in dividing it into three genera,—*Pseudodipsas*, *Poritia* and *Lycænesthes*—and to describe several new species in each of them.

Pseudodipsas Ione has three branches from the subcostal nervure. I do not in these remarks count (as Edward Doubleday did) the termination of the subcostal nervure itself as a fourth branch.

Poritia of Moore, which includes, together with *P. Hewitsoni*, *P. Sumatræ* and *P. Erycinoides* of Felder (counting in the same way), has two branches only from the subcostal nervure. Mr. Moore says that there are four; but I cannot understand how he comes to this conclusion, unless he counts one of the discoidal nervures.

In many of the *Lycænidae* the first branch from the subcostal nervure, which is absorbed by the costal nervure in one example of the same species, is free in another. I cannot, however, trace any such absorption in the many specimens which I have examined in this genus.

Lycænesthes has three subcostal branches; Moore says five, but in this case it is clear that he has counted a discoidal nervure as one. This genus, which has the appearance of a *Thecla*, with the neuration of *Lycæna*, will contain Felder's *P. Lycænoides* (*Bengalensis*, Moore), *P. Sylvanus* of Drury, and *P. Larydas* of Cramer, and several allied species which I now describe. *L. Emolus* of Trimen (I quote him for the name, feeling, as he does, a doubt as to its being Godart's species), which he likens to a *Thecla*, noting its rapid flight, his *L. Otacilia*, and *L. Amarah* of Guérin, will form part of this genus. All the species which I have examined have, when fresh, three tail-like tufts of hair (noticed by Moore) instead of the more substantial tails of other genera; and this will, I think, form an excellent characteristic of the genus,

since they do not exist (as far as I have noticed) in any of the true *Lycænas*.

Pseudodipsas Cephenes.

Upperside dark brown. Posterior wing with a submarginal series of five black pyramidal spots, bordered with white.

Underside white. Both wings with four or five spots before the middle; both crossed beyond the middle by a broad band, all slightly darker than the rest of the wing, and bordered with brown. Anterior wing with two submarginal bands of lunular brown spots. Posterior wing with a minute black spot near the base, and a submarginal series of pyramidal spots; the anal angle and a spot near it, where the outer margin projects, black, crowned with orange.

Exp. $1\frac{1}{2}$ inch.

Hab.—India (Atkinson).

Pseudodipsas Digglesii.

Upperside. Male.—Brilliant morpho-blue. Anterior wing with the costal margin which is narrow, and the outer margin which is broad, dark brown. Posterior wing with the outer margin which projects at the anal angle, dark brown, narrow.

Underside grey. Anterior wing with a spot at the end of the cell, a broken band of rufous spots beyond the middle, and a submarginal band of black spots. Posterior wing with a minute black spot near the base, five linear rufous spots before the middle, a zig-zag band of brown beyond the middle, and a submarginal series of black spots; two brick-red spots below these, near the anal angle, bordered below with silvery-blue.

Exp. $1\frac{2}{5}$ inch.

Hab.—Australia, Queensland (Diggles).

This species has been named after an Entomologist who has given his generous aid to myself and others.

Poritia Phalena.

Upperside. Male.—Black. Both wings marked by bands and spots of green. Anterior wing with a longitudinal narrow band from the base to the middle, a band on the inner margin, a trifold spot near the costal margin, and a submarginal series of six spots. Posterior wing with a band near the inner margin, two submarginal spots and three spots on the outer margin; one of them, which is at the anal angle, large, and marked by a black spot.

Underside rufous-brown. Anterior wing crossed at the middle by a band of white, and beyond it by a series of five grey spots. Posterior wing white, with the base and apex rufous-brown; several small brown spots near the middle, followed by three larger spots of the same colour; four large marginal spots, their centres and borders black.

Exp. $1\frac{1}{5}$ inch.

Hab.—Singapore (Wallace).

Poritia Phalia.

Upperside. Male.—Both wings marked by bands and spots of blue. Anterior wing with a band from the base and on the inner margin, a trifid spot near the costal margin, and a submarginal band of spots. Posterior wing with a band near the inner margin, two spots below the middle and three on the outer margin.

Underside pale lilac-brown. Both wings with the base dark brown; both crossed at the middle by a band of brown spots and by a submarginal rufous band. Anterior wing with a brown spot before the middle, and beyond it a broad band of brown.

Exp. $1\frac{3}{10}$ inch.

Hab.—Borneo (Lowe).

This, the preceding and following species are alike on the upperside. One description would do for the three.

Poritia Pharyge.

Upperside. Male.—Black. Both wings marked by bands and spots of green. Anterior wing with a band from the base and on the inner margin, a trifid spot near the costal margin, and a submarginal series of five spots. Posterior wing with a band near the inner margin, two spots beyond the middle and three on the outer margin.

Underside rufous-brown. Anterior wing with a spot before the middle, a linear broken band at the middle, and a submarginal band of indistinct, brown spots. Posterior wing crossed beyond the middle by three bands of spots; a linear blue band on the outer margin.

Exp. $1\frac{3}{20}$ inch.

Hab.—Borneo (Lowe).

Poritia Pheretia.

Upperside. Male.—Anterior wing black, with a band from the base to the middle, a band on the inner margin, and a transverse band of four spots beyond the middle, all green-blue. Posterior wing green-blue, with the costal margin and a spot below the middle dark brown.

Underside rufous, pale. Anterior wing crossed at the middle by a band of white. Posterior wing irrorated with white at the middle and crossed by a band of brown spots; three large spots on the outer margin; the two largest white, at the anal angle bordered with black, the middle spot marked with black, the outer spot black.

Female rufous-brown. Posterior wing with the outer half nearly lilac-white; underside like the male, except that the anterior wing is crossed by a second band of white.

Exp. $1\frac{1}{10}$ inch.

Hab.—Singapore (Wallace).

Poritia Philota.

Upperside. Male.—Black. Anterior wing with bands and spots of blue; a short band at the base of the costal nervure, a band from the base to the middle, a band on the inner margin, a trifid spot beyond the middle and a submarginal series of spots. Posterior wing with the inner half blue, marked by large black spots.

Underside rufous-brown, undulated throughout with paler colour, and marked by a series of pale hastate spots on the outer margin.

Exp. $1\frac{3}{10}$ inch.

Hab.—Sumatra (Wallace).

Poritia Pleurata.

Upperside. Male.—Brilliant blue. Anterior wing with the costal margin and apical half which is marked by two blue spots, dark brown. Posterior wing with the costal margin broadly brown; the outer margin black, spotted with white.

Underside white, crossed everywhere by rufous bands and spots, and marked near the outer margin by a series of singularly-formed spots. Anterior wing with a black spot at the anal angle. Posterior wing with three black spots, the spot nearest the anal angle crowned with orange.

Female rufous-brown. Anterior wing with a large orange central spot. Posterior wing with an oblique central band and three spots of orange near the outer margin; a submarginal linear band of white; underside like the male, but less crowded with spots.

Exp. $1\frac{7}{10}$ inch.

Hab.—Singapore (Wallace).

Poritia Promula.

Upperside. Female.—Cerulean blue. Anterior wing with the costal margin, the apical half, the outer margin, part of the inner margin, and a spot at the end of the cell, dark brown; a spot of blue near the outer margin. Posterior wing pale brown, irrorated with blue.

Underside grey-white, crossed throughout by very pale rufous bands and spots, the outer margins rufous; a black spot, bordered above with orange, at the anal angle of each wing.

Exp. $1\frac{2}{3}$ inch.

Hab.—Java (Wallace).

Poritia Potina.

Upperside. Female.—Orange. Anterior wing with the apex, the outer and inner margins, and a linear spot at the end of the cell, dark brown. Posterior wing angular a little below the apex, clouded with rufous-brown, and marked by three large brown spots near the outer margin.

Underside rufous, tinted with lilac, a linear spot at the end of the cell. Crossed before the middle by a rufous-brown band (broken into spots on the posterior wing), crossed beyond the middle by two bands (near together) of the same colour.

Exp. $1\frac{2}{5}$ inch.

Hab.—Singapore (Wallace).

Lycanesthes Lusones.

Upperside. Male.—Dark brown. Anterior wing with an orange spot near the inner margin below its middle. Posterior wing with a black spot between two of the anal tufts of hair, bordered on each side with orange.

Underside dark brown. Both wings crossed by several curved bands of white, both with a broader continuous band near the outer margin, and two closely approximating marginal bands of the same colour. Anterior wing with

an orange spot on the inner margin, below the middle. Posterior wing with two black spots near the anal angle, bordered with orange and irrorated with silver.

Exp. $\frac{1}{2}\frac{9}{10}$ inch.

Hab.—Gaboon (Rogers).

Lycænesthes Leptines.

Upperside. Male.—Dark brown. Anterior wing with a large, central, orange spot. Posterior wing with a central spot of orange, and three black spots on the outer margin bordered with orange.

Underside white. Both wings with several brown bands and black spots, and a submarginal brown band. Posterior wing with three black spots (two at the anal angle), bordered with orange and irrorated with silver.

Exp. $1\frac{1}{10}$ inch.

Hab.—Congo.

Lycænesthes Lysicles.

Upperside. Male.—Dark brown. Anterior wing tinted with lilac towards the inner margin. Posterior wing with a band from the base to the middle, a spot beyond the middle and some submarginal lunular spots, all lilac-blue.

Underside brown. Both wings crossed irregularly by several bands of pure white; both with a submarginal band, split into two, near the apex of the anterior wing. Posterior wing with three marginal black spots, one bordered above with orange and two at the anal angle, all irrorated with silver.

Exp. $1\frac{3}{10}$ inch.

Hab.—Old Calabar.

Nearly allied to *L. Laridas*.

Lycænesthes Lacides.

Upperside. Male.—Dark brown.

Underside dark brown. Both wings crossed by nine linear bands of white, formed of lunular spots on the outer margins. Posterior wing with an oblong white spot near the costal margin beyond its middle; the lobe and a spot between the tails (which has a rufous border) black, irrorated with silver.

Exp. $\frac{9}{10}$ inch.

Hab.—West Africa, Angola (Rogers).

Lycænesthes Lucretilis.

Upperside. Male.—Dark brown. Both wings irrorated with blue-white in the form of very indistinct spots and bands.

Underside dark brown. Both wings with several spots and bands of white, and two submarginal bands of linear spots of the same colour. Anterior wing crossed before and beyond the middle by distinct bands of white, the outer band (which is submarginal) broken below the apex. Posterior wing with a distinct white spot before the middle; the lobe, and a large spot near it, black, irrorated with silver.

Exp. $\frac{17}{10}$ inch.

West Africa, Gaboon (Rogers).

Lycænesthes Liodes.

Upperside. Male.—Dark lilac-blue; the outer margins dark brown, narrow, the fringe white. Posterior wing with two or three black spots near the anal angle, bordered below with blue-white.

Underside grey-white. Both wings with a spot at the end of the cell; both crossed beyond the middle by a band of spots and by two submarginal bands, all pale grey-brown. Posterior wing with a black spot near the base and two black spots near the anal angle crowned with orange and irrorated with silver.

Exp. 1 inch.

Hab.—Gaboon (Rogers).

Lycænesthes Ligures.

Upperside. Male.—Purple, with the margins dark brown.

Underside rufous-brown. Both wings with a spot at the end of the cell; both crossed beyond the middle by a broad rufous band, bordered on both sides with white, and by a narrow submarginal band of brown (zigzag on the posterior wing), also bordered with white. Posterior wing with two orange spots marked with black near the outer margin; the anal spot marked by two black spots, all irrorated with silvery-blue.

Exp. $1\frac{3}{10}$ inch.

Hab.—Angola (Rogers).

Lycænesthes Licates.

Upperside. Male.—Lilac-blue. Anterior wing with the costal and outer margins dark brown, very narrow.

Underside cinereous. Both wings crossed from the base to the outer margin by short linear distinct bands of pure white. Posterior wing with a black spot on the outer margin crowned with orange; the outer margin near the anal angle, white, marked with black.

Female.—Dark rufous-brown. Posterior wing with a submarginal white line; underside like the male, except that there are no white bands near the base of the anterior wing.

Exp. $1\frac{3}{10}$ inch.

Hab.—Makassar (Wallace).

Nearly allied to *L. Licænoides* of Felder, from which it is quite distinct in the position of the linear bands of the underside. It has also a very different female.

Hypochrysops Dicomas.

Upperside. Male.—Rufous-brown.

Underside, rufous-orange, clouded with brown. Both wings marked throughout by many small spots of silvery-blue; both with two linear bands of blue from the base. Anterior wing with a submarginal band of the same colour broken into spots.

Exp. $\frac{19}{10}$ inch.

Hab.—Waigiou (Wallace).

Hypochrysops Halyætus.

Upperside. Male.—Brilliant morpho-blue. Anterior wing with the costal margin, the apex where it is broad, and the outer margin, dark brown. Posterior wing with the costal margin broadly dark brown; a submarginal band of orange.

Underside orange-yellow. Anterior wing with seven spots of gold-green near the costal margin, three of them near together before the apex; three large brown spots (sometimes united) near the outer margin. Posterior wing crossed by four bands of brilliant gold-green; the second and third bands preceded on the costal margin by a separate spot; the submarginal band broken into large, oblong spots.

Female like the male, except that it is lilac-blue above,

and has a linear band of orange on the outer margin of both wings.

Exp. $1\frac{3}{10}$ inch.

Hab.—Australia (Swan River).

Hypochrysops Hypates.

Upperside. Dark brown. Anterior wing orange, with the costal and outer margins and apex very broadly brown. Posterior wing with an orange spot at the anal angle.

Underside. Anterior wing rufous-orange, with two subcostal linear silvery-blue bands and spots, and a submarginal series of six spots of the same colour: crossed transversely beyond the middle of a band of scarlet. Posterior wing yellow, crossed near the base by two straight bands of black, bordered partly on both sides with silver-blue; crossed at the middle by a curved band of black, and beyond it by a linear black band, bordered outwardly with silver-blue; the second and third bands scarlet where they touch the inner margin; the outer margin, broadly scarlet, traversed by a band of silver broken into spots towards the apex.

Exp. $1\frac{5}{10}$ inch.

Hab.—Malay Archipelago, Kaiou (Wallace).

A splendid insect, resembling *H. Eucletus* on the underside.

Hypochrysops Hippuris.

Upperside. Male.—Lilac-blue. Anterior wing with a large central spot of white; the costal and outer margins and apex and a minute spot at the end of the cell, black; brilliantly blue near the costal margin. Posterior wing with the costal margin white; the outer margin black.

Underside white. Anterior wing with the costal margin broadly brown, traversed by a broken band and some minute spots of silver-blue; the outer margin rufous, traversed by a series of linear spots and crossed near the apex by three spots, all silver-blue. Posterior wing crossed transversely by four bands of dark brown; the base which is brown, and the first band which is near it, bordered outwardly with silver; the second and third bands which are broad and straight, bordered on both

sides, and the fourth band, which is curved, is bordered on the outside only, with the same colour; the outer margin rufous.

Exp. $1\frac{4}{10}$ inch.

Hab.—Malay Archipelago, Aru (Wallace).

Nearly allied to *H. Doleschallii* of Felder.

Hypochrysops Herdonius.

Upperside. Male.—Dark brown. Anterior wing from the base to beyond the middle, between the median nervure and the inner margin, white, bordered with silver-blue. Posterior wing with the basal half white, except the base itself, which is brown; three longitudinal bands of silver-blue between the subcostal and median nervures.

Underside. Anterior wing as above, except that there is a broad band of silver-green (which is continued past the apex to the middle of the outer margin) near the costal margin, and a submarginal series of six brilliant linear silver spots. Posterior wing black, crossed before the middle by a broad band of white, tinted with yellow; a band near the base and a broad band near the outer margin, which is traversed by a series of black spots, blue; a submarginal band of brilliant silver-blue.

Exp. $1\frac{1}{2}$ inch.

Hab.—Malay Archipelago, Aru (Wallace).

Deudorix Deritas.

Upperside. Male.—Dark glossy blue, with the outer margin black, very narrow. Anterior wing with the costal margin dark brown. Posterior wing with one tail.

Underside dark brown. Both wings crossed beyond the middle by three linear bands of white: the first band straight on the anterior wing, the second band of the posterior wing very indistinctly marked, the third or submarginal band composed of lunular spots. Posterior wing with two black spots at the apex, a black caudal spot bordered with orange, the lobe black, crowned with orange.

Exp. $1\frac{2}{5}$ inch.

Hab.—Angola (Rogers).

Deudorix Deliochus.

Upperside. Male.—Anterior wing dark brown; the inner margin (which is slightly curved outwards where

ornamented by a tuft of hair) from its base to its middle, and bounded above by the median nervure, lilac-blue. Posterior wing with one tail, lilac-blue; the costal margin polished near the base, dark brown below; the lobe, which is very prominent, orange and black.

Underside ferruginous. Both wings crossed by four distinct linear bands of white, the fourth band near the apex, short; both crossed by two submarginal bands of lunular white spots. Posterior wing with a black caudal spot, bordered with orange, and a black spot, irrorated with silver-blue.

Exp. $1\frac{3}{10}$ inch.

Hab.—India.

Myrina bimaculata.

Upperside. Dark brown. Anterior wing with one large yellow spot towards the middle of the inner margin. Posterior wing with one tail marked beyond the middle by an ill-defined yellow spot, irrorated with brown; the lobe (which has an orange spot) and the caudal spot black; a marginal white line.

Underside grey-white. Both wings crossed by two submarginal bands of pale brown. Anterior wing crossed beyond the middle by a rufous band, bordered on both sides with white. Posterior wing crossed a little below the middle by two approximate zigzag bands of pale brown from the anal angle to the discoidal nervure: the caudal spot and the lobe and a small spot between them, which is irrorated with silver, all black, bordered with orange.

Exp. $1\frac{1}{10}$ inch.

Hab.—Gaboon (Rogers).

Myrina Nomenia.

Upperside. Male.—Orange. Anterior wing with the costal margin, which is very broad, and the outer margin, dark brown, darkest in the cell. Posterior wing with one tail, the outer margin black, narrow, the abdominal fold dark brown.

Underside yellow; the fringe brown. Posterior wing with two caudal lunular spots and the lobe, which are irrorated with silver, and the nervures where they touch them, black.

Exp. $\frac{1}{2}$ inch.

Hab.—Old Calabar.

Zeritis Zaraces.

Upperside. Male.—Grey-brown. Anterior wing with a black spot at the end of the cell and a second beyond it, the space between them white; a black spot near the middle of the inner margin, its centre pale; crossed beyond these, parallel to the outer margin, by a hexafid band of pale yellow. Posterior wing with a central pale yellow spot, bordered above and below with black.

Underside grey-brown, undulated throughout with darker brown. Anterior wing with the centre yellow, marked as above by the spot at the end of the cell, the black spot beyond (which is divided into two), and by a band of four black spots. Posterior wing with four or five sub-basal spots and a transverse band beyond the middle of rufous-brown.

Female white. Both wings with the base and margins broadly brown; both with a black spot at the end of the cell and a short band of the same colour beyond it. Anterior wing with a large, triangular black spot in the middle. Underside like the male.

Exp. $1\frac{2}{5}$ inch.

Hab.—South Africa.

The male of this species is very closely allied to *Z. Proturnus*, but has a very different female.

Zeritis Zorites.

Upperside. Male.—Rufous-brown.

Underside pale rufous-grey. Anterior wing with two white spots within and one at the end of the cell, bordered with black and irrorated with gold, an angular, hexafid band of white beyond the middle, bordered with black and irrorated with gold; a band of white near the outer margin, marked on both sides with minute brown spots, the spots on the inner side irrorated with silver. Posterior wing with some white spots near the base, bordered with black; crossed beyond the middle by two white bands, bordered on both sides by brown spots, the spots on the inner side of these bands irrorated with silver.

Exp. ♂ $1\frac{2}{10}$, ♀ $1\frac{1}{5}$ inch.

South Africa (Buxton).

Mr. Buxton has very kindly given me specimens of this species, taken by himself. It is very unlike other brilliant species of the same genus.

Liphyra Leucyania.

Upperside. Male. — Rufous-brown. Posterior wing with the outer margin angular at the first branch of the median nervure.

Underside white. Anterior wing with four spots on the costal margin, a subapical band and a submarginal band from the apex to beyond the middle, irrorated with rufous-brown and bordered with dark brown. Posterior wing crossed near the base by some rufous lines; crossed at the middle and near the outer margin by broad bands, irrorated with rufous-brown and bordered with dark brown.

Female brown. Anterior wing convex on the outer margin, dark brown, with a large white spot before the middle. Posterior wing angular at the second branch of the median nervure. Underside white, smeared with brown. Anterior wing with a short linear band of brown below the apex. Posterior wing with a triangular spot near the base, a line crossing the cell and a line above the anal angle, all dark brown.

Exp. ♂ $1\frac{6}{10}$, ♀ $1\frac{9}{10}$ inch.

Hab.—Old Calabar.

XIV. *Illustrations of several additional species of Lucanidæ in the Collection of Major F. J. Sidney Parry.* By J. O. WESTWOOD, M.A., F.L.S.

[Read 16th March, 1874.]

I AM again indebted to Major F. J. S. Parry for an opportunity of describing several interesting species of *Lucanidæ* in his very rich collection of these insects, and of figuring two others (hitherto unrepresented), which have been already described by him.

The first of these species is so unlike every known insect in the family as to render the establishment of a new genus or sub-genus for its reception necessary. The second is a valuable addition to the genus *Heterochthes*, known hitherto by a single species of so great rarity that I believe only a single male and one of the opposite sex are in any cabinet. The fourth species appears to be a strangely developed specimen of the male of *Odontolabis striatus*.

Eulepidius luridus. (Pl. III. fig. 1.)

Cyclommato et Prosopocoilo proximus.

Character subgenericus.—Corpus undique squamosum. Caput transverso-quadratum. Oculi septo antice paullo incisi. Prosternum simplex. Maxillæ inermes. Mentum transversum palporum basin obtegens. Mandibulæ ♂ capitis longitudine, basi intus in dentem magnum planum triangularem dilatata. Tibiæ 2 anticæ apice extus bifidæ. Tarsi subtus setosi.

Char. spec.—Niger, punctatus, squamulis minutis luteo-sericeis undique tectus; capite prothorace minori lateribus rectis, oculis antice cantho parum incisis, margine antico clypei late emarginato depresso, et depressione centrali notato; mandibulis capitis longitudine, basi late trigonis, in medio subito intus angulatis, apicibus acutis simplicibus; pedibus parum elongatis, tibiis anticis apice externo producto bifido, 4 posticis simplicibus; tarsis subtus luteo-setosis, prosterno simplici postice haud angulato retro producto.

Long. corp. lin. $8\frac{1}{2}$; mand. lin. $1\frac{1}{2}$.

Habitat Borneo. In Mus. Parry.

This curious species is about the size of *Cacostomus squamosus*, agreeing with it in the small scales with which it is everywhere covered; the mandibles, eyes (having only a slight incision in front), and especially the remarkable mandibles, however, entirely separate it from that genus. The head is smaller than the prothorax, transverse, with the sides nearly straight and parallel; the eyes are not prominent, and the sides of the head in front of the eyes form an obtuse angle; the front of the head is deeply emarginate and the middle of the disk of the head between the eyes is marked by two raised spaces. The antennæ are of moderate length, the three terminal joints comparatively small, the preceding (seventh) joint not being larger than the sixth; the mandibles are about the length of the head, they are flat above, the basal half being dilated into a large triangular tooth, of which the anterior margin is slightly produced in the middle; the inner basal angle is produced inwardly into an acute point, and the outer base extends outwardly, forming a right angle; beyond the middle they are suddenly angulated inwardly, terminating in an acute point; their upper surface is punctured and setose; the mentum is transverse, deeply punctured, with the anterior lateral angles rounded, the extremity of the labial palpi being alone visible beyond its fore margin. The maxillæ have the outer lobe very setose, the inner lobe minute and simple. The prothorax is wider than long, the lateral margin rounded and serrated, the posterior half of the lateral margin being obliquely truncate; the middle of the disk in front has a slight longitudinal depression; the scutellum is minute and semicircular. The elytra are rather narrower at the base than the prothorax, and have the anterior lateral angles angulated; the disk is opaque, being covered with minute punctures, each emitting a luteous squamula; on each may also be perceived four ill-defined, slender, longitudinal, slightly-raised carinæ. The body beneath is covered with coarser setigerous punctures, except on the abdomen, where they are very fine and small. The prosternum is simple, gradually narrowed between the bases of the fore legs, behind which it does not form a produced raised angle. The anterior tibiæ are moderately long and slender, the apex externally being prolonged and terminated by two spines. The four posterior tibiæ are externally unarmed, and the tarsi are clothed on the under-side with long fulvous hairs.

The scales on the pronotum form seven more decided patches.

Heterochthes Andamanensis. (Pl. III. fig. 2.)

Latus, niger, elytris nitidis lævibus, capite prothoracis latitudine, mandibulis capite dimidio longioribus, prope basin arcuatis, dente apicali incurvo, tuberculoque minuto subapicali armatis; oculis septo omnino divisis, occipite in medio postice impressione parvâ oblongâ notato; tibiis anticis extus 5-6-dentatis; 4 posticis extus in medio inermibus, prosterno in medio longitudinaliter canaliculato.

Long. corp. lin. 17; mandib. lin. $6\frac{1}{2}$.

Habitat ins. Andamanenses. In Mus. Parry.

In its general character this insect approaches nearest to *Heterochthes brachypterus* (Trans. Ent. Soc., 3rd Ser., vol. ii.* pl. xi. fig. 1), but differs in its wider and more flattened form, with the head not wider than the prothorax and the elytra flatter and more cordate in form. The head and thorax are black, scarcely shining, and impunctate except at the sides, where the punctures become gradually more distinct and coarse; the front margin of the head is gradually depressed and not elevated as in *H. brachypterus*; the sides of the head, behind the eyes, have a rounded tubercle, and in the centre near the hind margin is an oval depression. The elytra are black, glossy, and under a high lens are seen to be finely punctured; their lateral margins are recurved. On the underside the head is strongly and the jugulum finely punctured. The anterior tibiæ are five-toothed on their outer edge, and the four posterior tibiæ short, unarmed and setose. The prosternum (which in *H. brachypterus* is convex in the centre, with a longitudinal impressed line on each side) is here marked in the centre with two irregular longitudinal impressions.

Leptinopterus fraternus. (Pl. III. fig. 3.)

Niger, subnitidus, capite magno plano, antice emarginato, postice in medio impresso et utrinque spatio glabrò punctato notato, pronoti angulis posticis oblique truncatis, disco crebre punctato, punctis setigeris; scutello nigro, nudo; elytris luteo-rufis, unicoloribus.

* Plates XI. and XII. are mislettered Vol. I. instead of Vol. II.

Long. corp. masc. lin. 12; fœm. lin. 8; mand. maris lin. 7.

Habitat in Brasiliâ. In Mus. Parry.

This species is closely allied to *L. polyodontus*, but is slightly smaller and is at once distinguished by the flat and thin mandibles of male, the glabrous granulated patch on each side of the hind part of the head, the naked scutellum, and the uniform colour of the elytra. The mandibles of the male have a truncate tooth near the base of the inner edge, followed by a small tubercle; at one-third of their length is a small conical tooth, and at two-thirds of their length is a larger tooth, preceded by a minute tubercle, and followed by four small teeth on the right-hand mandible and by five similar ones on the left mandible. The head of the male has a distinct depression, acuminate behind; in the middle of the hind part, and on each side of this towards the posterior lateral angles of the head, is a shining, coarsely granulated space, the remainder of the head being very delicately granulated. The prothorax is slightly glossy on its upper side, covered with minute punctures, and the posterior angles are more obliquely truncate than in *L. polyodontus*. The elytra are also very delicately punctured, and on each, with a lens, are to be observed six or seven very delicate longitudinal striæ. The anterior tibiæ are serrated, the three or four terminal teeth being the largest. The middle tibiæ have a minute spine in the middle of the outer edge. The scutellum is naked and black.

The female is more shining than that of *L. polyodontus*, with larger punctures, especially on the pronotum, which is black and destitute of the slight metallic reflexion seen in that species. The scutellum is naked as in the male, and the elytra have the suture slenderly marked with black; the punctures of the elytra are more decidedly visible than in the male, and they are marked with five longitudinal striæ as in that sex.

Odontolabis striatus, var. (Pl. III. fig. 4.)

Deyrolle, Ann. Soc. Ent. France, 4 Sér. t. iv. 1864,
plate 4, fig. 3.

The insect here represented is regarded by Major Parry as an extreme development of *O. striatus*. It is from

Borneo, of a black colour, slightly shining and much rubbed, but the longitudinal bands of colour formed by fine setæ are distinctly visible on the sides of the elytra, on the disk of which are also to be observed with a lens alternate longitudinal spaces thickly covered with minute punctures (each of which has doubtless emitted a fine seta now abraded), with intervening spaces almost destitute of the fine punctures; in this manner four distinct rows of fulvous setæ can be traced on each elytron. The head and thorax have also evidently been abraded. The head, instead of being transverse as in the type of *O. striatus*, is here nearly square, almost flat on the crown with the fore margin nearly straight, and projecting considerably over the base of the mandibles, the clypeus being, in fact, inflexed beneath; the sides of the head near the eyes are punctured; the mandibles are about twice the length of the head, the basal half compressed, with a large, triangular, slightly bifid tooth halfway between the middle and the apex, which is also bifid, and in the anterior curve of the lower tooth is a minute tubercle; behind the eyes the sides of the head have a small but acute incision; the prothorax has a slight lateral and posterior raised margin. The anterior tibiæ are externally armed with six teeth, of which the first is minute and placed near the middle of the outer edge; the extremity of these tibiæ is flattened, and the teeth close together, so as to appear nearly palmate. The four hind tibiæ are unarmed in the middle of the outer edge; they are ornamented with longitudinal rows of fulvous setæ. The tarsi are villose beneath. The eyes are entirely divided by the slender septum. The mentum is transverse, densely setose. The maxillæ have the outer lobe strongly setose, and the inner lobe minute and simple. The prosternum is black, glossy, and concealed behind the insertion of the forelegs, where it forms an acute prominent point. The metasternum and abdomen are impunctate, subopaque and slightly setose.

The specimen is $13\frac{1}{2}$ lines long, and the mandibles are 6 lines long; the latter are deflexed.

Nigidius obesus, Parry. (Pl. III. fig. 5.)

Trans. Ent. Soc. 3rd Ser. vol. ii. p. 63.

“*N. convexus*, *brevis*, *nigerrimus*, *nitidus*; capite utrinque infra oculos auriculato; mandibulis subrecurvis, intus ad

basin processu bifido productis, extus pone medium dente parvo obtuso armatis; prothorace crebre grosseque punctato, in medio obsolete late longitudinaliter canaliculato, angulis anticis simplicibus; elytris brevibus, convexis, rugoso-punctatis, fortiter sulcatis, interstitiis lævibus."

Habitat Penang, Malacca. In Mus. Parry.

Long. corp. lin. $7\frac{1}{2}$ (mandib. inclus.).

Gnaphaloryx sculptipennis, Parry. (Pl. III. fig. 6.)

Trans. Ent. Soc. 3rd Ser. vol. ii. p. 52.

Niger, opacus, undique luteo-squamulosus, mandibulis capitis longitudine, intus fere rectis, apice acutis, dente crasso interno subbasali; elytris bicostatis, interstitiis lineis elevatis et punctatis notatis.

Long. corp. (cum mandib.) lin. 8.

Habitat Nova Guinea. In Mus. Lugdunensi et D. Parry.

This species has very much the appearance of and is closely allied to *Gnaphaloryx squalidus*, Hope (*tomentosus*, Dej.), but is comparatively rather shorter, and the short thick hairs or scales with which it is everywhere clothed are of a paler colour. The head is transverse, with two slightly raised circular spaces between the centre of the occiput and the eyes, leaving a slight depression between them; the mandibles are about the length of the head, not much curved, the inner edge being nearly straight and entire, except near the base, where there is a large, strong, transverse tooth, obliquely truncate at the tip; the canthus of the eyes is more distinct and angulated in front behind the insertion of the antennæ than in *G. squalidus*; the prothorax has the lateral margins rather more convex than in that species, and the middle of the disk has a decided longitudinal impression. The elytra have the suture raised, and each has two longitudinal elevated costæ, which are thickly clothed with scales; between the suture and the first costa is one row, between the first and second costæ are three rows, and between the second costa and the lateral margin are several less distinct rows of small raised tubercles, forming striæ separated at intervals by impressions; the interstices are finely punctured and squamose at the extremity of the elytra (which are there denuded of scales), the subsutural and following striæ are seen forming deeply impressed lines, the central tubercular striæ terminating at some distance from the extremity of

the elytra. The legs are slender and squamose, the anterior tibiæ armed at the extremity on the outside with two teeth; the four posterior tibiæ are unarmed in the middle on the outside. The body beneath is but moderately squamose, the sides of the head and mesosternum being deeply punctured.

EXPLANATION OF PLATE III.

- Fig. 1.—*Eulepidius luridus*; 1 *a*, head seen from above; 1 *b*, eye; 1 *c*, maxilla; 1 *d*, mentum; 1 *e*, extremity.
- Fig. 2.—*Heterochthes Andamanensis*; 2 *a*, labrum; 2 *b*, mentum with tips of maxillary and labial palpi; 2 *c*, eye divided by canthus; 2 *d*, prosternum.
- Fig. 3.—*Leptinopterus fraternus*.
- Fig. 4.—*Odontolabis striatus*, var.; 4 *a*, apex of mandible; 4 *b*, eye divided by canthus; 4 *c*, maxilla; 4 *d*, mentum.
- Fig. 5.—*Nigidius obesus*; 5 *a*, mandible.
- Fig. 6.—*Gnaphaloryx sculptipennis*; 6 *a*, front of left side of the head with mandible.



XV. *Further descriptions of Lucanoid Coleoptera.* By
Major F. J. SIDNEY PARRY, F.L.S.

[Read 6th April, 1874.]

Fam. CHIASOGNATHIDÆ.

Gen. SPHENOGNATHUS.

THE insects pertaining to the genera *Chiasognathus* and *Sphenognathus* appear at the present period to be exclusively distributed over the several countries which form the western portion of Southern America, their habitat extending, as far as we at present know, from Columbia to Chili; hitherto they have been but scantily represented in our collections, and of the genus *Sphenognathus*, *S. prionoides*, Buquet, and *S. Feisthameli*, Guérin, were for a long period the only two species known to entomologists, whereas at present we are acquainted with four species of *Chiasognathus* and twelve of *Sphenognathus*, and it is more than probable that others will hereafter be added to the list. Much difficulty is experienced in determining the species of the genera for want of sufficient material illustrating the various developments of the insect, and, further, the abnormal state they so often present (in reference to their pubescent condition) is a great stumbling-block to the entomologist, the normal state of the species being seldom available for description.

The following are the characters of several new species which have recently fallen under my notice, represented unfortunately (with the exception of *S. nobilis*) by single specimens only. I have also given the diagnosis, accompanied with a figure of a species recently described by Mr. C. Waterhouse, and furthermore a list of all the species belonging to both the genera alluded to up to the present period. I may also mention that a 3rd edition of a general Catalogue of all the species of Lucanoid Coleoptera, hitherto described, is nearly ready for publication.

Sphenognathus nobilis, ♂, Parry (var. max.). (Pl. IV. fig. 1.) (♀ incognita.)

S. castaneus, viridi-metallicus tinctus, elongatus, subconvexus, subtiliter granulosis, mandibulis, capite, prothoraceque brevioribus, porrectis, punctatis, apicibus incurvatis, suprâ et intus in medio tuberculis nodosis irregulariter instructis, dentoque basali et subapicali armatis; capite quadrato, antice elevato, utrinque nodoso, ante oculos angulato, articulis antennarum elongatis, clavâ modice productâ; prothorace angusto elongato, disco elevato, lateribus subtiliter crenatis, angulis posticis reflexis, denticulo parvo instructis; elytris modice vermiculatis, angulis humeralibus rotundatis, minute tuberculatis; tibiis anticis curvatis, fusco-castaneis, intus et extus irregulariter denticulatis, intermediis posticisque flavis, fere rectis, extus minutissime dentatis, tarsis nigro-piceis; mandibulis, capite, prothoracis lateribus, scutelloque regioni, et corpore subtus, longâ pubescentiâ fulvâ obsolete vestitis.

Long. corp. unc. 1, lin. 6; mandib. lin. 6.

Hab.—Venezuela. Coll. Parry.

S. nobilis is at once distinguished from its congeners by the narrow, elongate and subconvex form of its prothorax, its glabrous appearance and brilliant iridescent coloration. The strong subapical tooth of the mandibles is peculiar to this species and appears to be constant in the three varieties of development in my collection; moreover, the antennæ exhibit a remarkable difference from the other species of the genus, in their more slender scapus, and conspicuously longer joints, those of the clava being much less produced, while on the other hand the legs are considerably more robust.

Sphenognathus signatus, ♂, Parry (var. minor). (Pl. V. fig. 2.) (♀ incognita.)

S. obscure brunneo-æneus, prothorace lateribus cupreotinctis, mandibulis capite paulo longioribus, punctatis, intus-obtuse dentatis, et *extus* prope basin tuberculo parvo instructis; capite fere ut in *S. armato*; prothorace elytris angustiori, in medio subconvexo, leviter canaliculato, grosse et irregulariter punctato, lateribus crenulatis, angulis posticis unidentatis; elytris apicem versus dilatatis, convexis, dense subtiliter punctatis, vermiculatis; pedibus concoloribus, tibiis anticis intus et extus fortiter et irregulariter armatis, intermediis 5—6, posticisque 2—3, dentatis;

mandibulis, capite prothoracisque lateribus, et corpore subtus, griseo-pubescentibus.

Long. corp. unc. 1, lin. 3; mandib. lin. 3.

Hab.—Venezuela. Coll. Parry.

This species is most closely allied to *S. armatus*. The *externally* tuberculate mandibles, the coarser punctuation of the head and thorax, the latter being considerably narrower, with the absence of the nodules at its base, and the more brassy tint of the insect under consideration, appears to me amply to justify its separation; moreover, the armature of the posterior tibiæ is scarcely appreciable.

Sphenognathus circumflexus, ♂, Parry (var. max.?).

(Pl. IV. fig. 3.) (♀ incognita.)

S. obscure castaneo-æneus, mandibulis fere semicirculariter curvatis, suprâ deplanatis, profunde punctatis, intus a basi fere ad apicem obtuse dentatis; capite quadrato, antice elevato, binodoso, modice punctato, ante oculos angulato, postice fere glabro; prothorace lato, in medio convexo, crebre punctato, angulis posticis unidentatis; elytris dense subtiliter punctatis vermiculatis, angulis humeralibus obsolete tuberculatis; tibiis anticis leviter curvatis, fusco-castaneis, intus et extus irregulariter spinosis, intermediis flavis, extus 5—6 spinis acutis armatis (posticæ mutilatæ).

Long. corp. unc. 1, lin. 5; mandib. lin. 6.

Hab.—Venezuela. Coll. Parry.

An intermediate form between *S. Feisthameli* and the following species, *S. caniculatus*, perhaps more closely allied to the former, from which it however differs in the circumflex form of the mandibles, these organs being more strongly punctate and depressed upon their upper surface, with no trace of the external, suberect, basal tooth, always to be met with in *S. Feisthameli*; moreover, the *left* mandible alone is furnished with a prominent internal basal tooth; further, the prothorax is wider, more convex and more coarsely punctate, with the anterior angles more rounded; in other respects there is, however, a great similarity; nevertheless, I am of opinion that the two species may be considered as being distinct. Unfortunately, in the present instance, the only specimen available for description is mutilated; from traces to be met with, this insect is evidently, in its normal condition, pubescent.

S. canaliculatus, ♂, Parry (var. max.?). (Pl. IV. fig. 2.)
(♀ incognita.)

S. castaneus, suprâ æneo-virescens, mandibulis punctatis, leviter curvatis, capite prothoraceque paulo brevioribus, intus ad apicem dense aureo-pubescentibus et suprâ sat profunde canaliculatis, marginibus, suprâ et intus, tuberculatis nodosis instructis; capite, ut in *S. circumflexo*, in medio cupreo-nitente, prothorace angusto subconvexo, disco rugose punctato, lateraliter bi-impreso, lateribus subtiliter crenatis, angulis posticis reflexis bidentatis; elytris dense subtiliter punctatis vermiculatis, angulis humeralibus vix tuberculatis; pedibus concoloribus, castaneo-virido-opacis, fere rectis; tibiis anticis extus 8—9 irregulariter dentatis, intus prope apices spinis duabus minutis instructis, quatuor posticis obsolete 4 vel 5 armatis; mandibulis, capite, prothoracisque lateribus, longâ pubescentiâ fulvâ vestitis, corpore subtus dense tomentoso.

Long. corp. unc. 1, lin. 3; mandib. lin. 6.

Hab.—Venezuela. Coll. Parry.

S. canaliculatus may be at once distinguished from its nearly allied species by the form and armature of its mandibles, the very subconvex and strongly sculptured disk of the prothorax, the posterior angles being armed with *two* minute denticulations instead of one, the legs moreover being unicolorous.

Sphenognathus Taschenbergi, ♂, Parry (var. minor).
(Pl. V. fig. 1.) (♀ incognita.)

S. obscure castaneus, elytris viridi-tinctis, mandibulis capite paulo longioribus, intus obsolete tuberculatis; capite parvo subquadrato, in medio grosse punctato, angulis ante oculos rotundatis; prothorace transverso convexo, lateribus subrotundatis, angulis posticis leviter reflexis, in medio grosse punctato, longitudinaliter vix canaliculato; elytris fere parallelis, crebre subtiliter punctatis, transversim rugulosis; pedibus concoloribus, castaneis, viridi-tinctis, tibiis anticis extus obsolete 1 vel 2, intermediis 3 vel 4, posterioribus 1, spinis minutis instructis; mandibulis, capite, prothorace et corpore subtus dense aureo-pubescentibus.

Long. corp. unc. 1; mandib. lin. 3.

Hab.—Venezuela. Coll. Parry.

This species, like *S. pubescens*, Waterhouse, is remarkable by its depressed elytra, and in the character of the

mandibles, head and prothorax assimilating very closely to it, but the sculpture is somewhat coarser, with the posterior angles of the prothorax rounded, slightly reflexed, and not bidentate as in *S. pubescens*, whilst both the sculpture and colour of the elytra differ conspicuously; the pubescence of the insect is moreover of a more golden hue. I have named this new species in honour of Dr. Taschenberg, Professor of Natural History at the University of Halle, to whom, upon the present occasion, I am indebted for much valuable information.

Chiasognathus pubescens, ♂. (Pl. V. fig. 3.)

Waterhouse, Ent. Monthly Mag. Oct. 1873, p. 110.

Castaneus, nitidus, æneo-micans, griseo-pubescens, convexiusculus; tibiis anticis extus bispinosis, intus 2- vel 3-denticulatis, intermediis rectis vix unidenticulatis, posticis rectis, muticis; antennis tarsisque nigris.

Long. (mandib. exclusis) 14 lin.; mandib. 3 lin.

Hab.—Venezuela. Coll. Parry et Mniszech.

This interesting new species was recently described by Mr. C. Waterhouse, who justly characterizes it as being distinguished from other allied species of the genus by its depressed form and dense pubescence. I have thought it advisable to add a figure of the insect in the present publication, as well as Mr. C. Waterhouse's diagnosis of the species.

Chiasognathus Peruvianus, ♂ ♀, Waterhouse, Tr. Ent. Soc. 1869, pl. iii. fig. 3.

Sphenognathus Wallisii, ♂, Taschenburg, Zeitschrift f. d. gesammten Wiss. 1870, p. 178.

Mr. C. Waterhouse's species has been again described, *loc. cit.*, with other interesting novelties, by Dr. Taschenberg, to whom I am indebted for the specimen (♂) in my collection. This insect was found somewhat profusely at Loja, in Ecuador, by the well-known traveller and botanist Herr Gustav Wallis, of Detmold, who traversed South America during 1860 to 1867, commencing his travels from the mouths of the Amazons, and proceeding through Ecuador and Columbia to Panama, whence he returned to his native country.

S. Wallisii must therefore yield to the law of priority, as its identity with the type specimen of *C. Peruvianus* in the British Museum does not admit of the slightest doubt.

List of species belonging to the genera *Chiasognathus* and *Sphenognathus* recorded up to the present period. As regards the sequence of the species, I have ventured on a distribution of them more in accordance, I believe, with their affinities than that hitherto followed:—

1. CHIASOGNATHUS, Stephens.

- | | |
|--|--------|
| 1. <i>C. Grantii</i> , Stephens | Chili. |
| 2. <i>C. impubis</i> , Parry | Chili. |
| 3. <i>C. Latreillii</i> , Solier | Chili. |
| 4. <i>C. Jousseleinei</i> , Reiche | Chili. |

2. SPHENOGNATHUS, Buquet.

- | | |
|---|----------------|
| 1. <i>S. nobilis</i> , Parry | Venezuela. |
| 2. <i>S. armatus</i> , Parry | Venezuela. |
| 3. <i>S. signatus</i> , Parry | Venezuela. |
| 4. <i>S. Feisthameli</i> , Guérin | N. Grenada. |
| 5. <i>S. circumflexus</i> , Parry | Venezuela. |
| 6. <i>S. canaliculatus</i> , Parry | Venezuela. |
| 7. <i>S. prionoides</i> , Buquet.. .. | N. Grenada. |
| 8. <i>S. Lindeni</i> , Murray | Ecuador. |
| 9. <i>S. Murrayi</i> , Thomson | Venezuela. |
| 10. <i>S. Peruvianus</i> , Waterhouse | Peru, Ecuador. |
| 11. <i>S. pubescens</i> , Waterhouse | Venezuela. |
| 12. <i>S. Taschenbergi</i> , Parry | Venezuela. |

Lucanus Swinhoei, ♂ ♀, Parry (var. max.). (Pl. IV. fig. 4.)

L. fusco-castaneus, nitidus, lævis, subtilissime punctulatus, mandibulis regulariter arcuatis, apicibus subfurcatis, dente interno magno, prope basin, in medio 7 vel 8 tuberculis nodosis irregulariter instructis.

Long. corp. unc. 1, lin. 2; mandib. lin. 6.

Hab.—Ins. Formosa.

In form, coloration, and general character, *L. Swinhoei* bears a striking similarity to *L. Fortunei*, Saunders, a well-known species from Hong Kong. The following important differences appear nevertheless to warrant their separation. The form of the mandibles in *L. Swinhoei*, and their armature as regards *position* of the teeth (vid. Pl. IV. fig. 4) appears to be totally distinct. Again these organs in the present species are found to be more arcuate and exhibit a gradual, but regular curvature from their base to the apex, whereas in *L. Fortunei* (vid. Pl. IV. fig. 5), they are considerably more prominently rounded at the base and *irregularly* sinuated towards the apex. The single strong internal tooth with which both species are armed is placed in the Formosan insect *near* the base, whilst in the Hong Kong insect it is invariably situate somewhat below the apex in the centre of the series of

tubercles. The head is also narrower and rounder, with its posterior angles more reflexed; finally the sculpture is more diffuse, and less pronounced. In their respective females the same difference in the character of the sculpture is observable; moreover in *L. Swinhoei* ♀ the anterior angles of the prothorax are more rounded. Two specimens were received from Consul Swinhoe, to whom we are already indebted for numerous interesting additions to the Entomological Fauna of China.

Eurytrachelus eurycephalus, ♂, Burm. (var. minor).

Dorcus eurycephalus, Burm. Handbuch f. Ent. v. 387.

Eurytrachelus Candezii, ♂, Parry, Tr. Ent. Soc. 1870, p. 90, pl. i. fig. 2.

I am indebted to Dr. Taschenberg for the opportunity of identifying a species hitherto somewhat questionable to many entomologists. In the 1st edition of my Catalogue of the Lucanoid Coleoptera, Tr. Ent. Soc. 1863, *D. eurycephalus* was referred, upon the authority of Professor Lacordaire and Mons. Reiche, as a synonymy to *E. Bupalus*, Perty, while the latter insect was subsequently found to be only a var. minor of *E. Bucephalus* (vid. Cat. 2nd edit. 1870, p. 89). It may now be affirmed without doubt, upon examination of one of two specimens existing in the Museum of Halle, from which Dr. Burmeister made his description, that *E. eurycephalus* is a distinct species, and moreover that upon comparison it is found to be identical with *E. Candezii*, Parry, the latter exhibiting a somewhat smaller development, with the internal sub-apical tooth of the mandibles but very slightly produced, causing these organs to appear acute, and not forked at their apex, according to Dr. Burmeister's description. As regards the two perfectly uniform auricular impressions on the prothorax of the *E. Candezii*, they must, I am satisfied, be considered as purely accidental and quite abnormal, no trace of them existing in the specimen received from Halle.

Genus ÆGOTYPUS, Parry.

Corpus subrotundatum, convexum. Clypeus parvus, emarginatus. Mandibulæ capite vix longiores rectæ. Caput magnum, transversum, convexum, antice reflexum, infra oculos armatum, antennarum clavâ 3-articulatâ. Prothorax lateribus trilobatus, angulis anticis prominulis rotundatis. Tibiæ inermes, ciliatæ.

Ægotypus trilobatus, ♂ ♀ (var. max.) (Pl. V. fig. 4 ♀, 5 ♂.)

Ægus? trilobatus, ♂, Parry (var. minor), Tr. Ent. Soc. 1864, p. 59, pl. vii. fig. 7.

Gnaphaloryx trilobatus, Parry, Cat. Luc. Col. Tr. Ent. Soc. 1870, p. 113.

Æ. nigro-fuscus, capite, prothorace, elytrorum marginibus, pedibusque fusco-ferrugineis, hirsutis; mandibulis robustis, intus ad basin fortiter unidentatis, ad apicem emarginatis; capite parce punctato, antice emarginato, in medio carinâ reflexâ producto, pone oculos dente obtuso armato; prothorace capite latiori punctato, antice bisinuato, angulis anticis prominulis, lateribus singulariter trilobatis; elytris ovalibus subnitidis, profunde striatis, tibiis fortiter ciliatis.

Long. corp. (mandib. incl.) lin. 8.

Hab.—Borneo.

♀ Mandibulis brevis simplicibus; capite ante oculos angulato, pone oculos inermis; prothoracis lateribus fere rectis; elytris striatis, tibiis inermis, fortiter ciliatis.

In the description of the var. minor of this insect, *loc. cit.*, hesitation was expressed, as to its being properly placed in the genus *Ægus*; subsequently, in the second edition of my Catalogue, it was temporarily located in the allied genus *Gnaphaloryx*; but having recently obtained a specimen of the var. max. and also the female, I am now disposed to make it the type of a new genus: such marked characters appearing to be met with in both sexes, differing so essentially from the members of the genus *Ægus* and *Gnaphaloryx*, the reflexed anterior margin of the head is alone peculiar to this insect. In the family of the *Dorcidæ*, indeed, this character has hitherto been confined to certain species (exhibiting as in the present instance the var. max.) belonging to the genera *Lucanus* and *Odontolabis*.

EXPLANATION OF PLATES.

- Pl. IV. fig. 1.—*Sphenognathus nobilis*, ♂.
 " 2. " *canaliculatus*, ♂.
 " 3. " *circumflexus*, ♂.
 " 4.—Head of *Lucanus Swinhoei*, ♂.
 " 5. " *Fortunei*, ♂.
- Pl. V. fig. 1.—*Sphenognathus Taschenbergi*, ♂.
 " 2. " *signatus*, ♂.
 " 3. " *pubescens*, ♂.
 " 4.—*Ægotypus trilobatus*, ♂.
 " 5. " " ♀.
 " 6.—*Ægus grandis*, H. Deyr.

Note.—The paper to which the last figure refers will appear in the next Part, p. 411.

XVI. *Descriptions of new species of Tenthredinidæ, Ichneumonidæ, Chrysididæ, Formicidæ, &c. of Japan.* By FREDERICK SMITH.

[Read 6th April, 1874.]

THE majority of the insects described in the present paper were collected by Mr. George Lewis during his residence in Japan, the rest are in the collection of the British Museum; among these are species collected by Mr. Henry Whiteley at Hakodadi, and others by Mr. R. Fortune in North Japan, probably from Hakodadi also. The general aspect of the collection is that of an European one, a single exotic form only being found among them in the genus *Thyreodon*. Several of the species of the genus *Ichneumon* very closely resemble well-known English ones: *Ichneumon cognatorius* is the counterpart of the British species *T. Proteus*; *Trogus arrogans* very closely approaches *T. pepsoides* of North China.

The *Tenthredinidæ* are very interesting; many of them also closely resemble European ones: *Hylotoma nigritarsis* is extremely like *H. violacea* of Klug; *Hylotoma imperator* greatly resembles *H. enodis*; indeed, of the six species of this genus described, five are close representatives of British ones, whilst I have been unable to separate the sixth from the *Hylotoma pagana* of Panzer. *Tenthredo erratica* appears to be identical with specimens from Siberia, both probably being mere climatal varieties of *T. flavicornis* of Fabricius. The common *Tenthredo scalaris* is found in Japan, only differing in being rather larger. Of three species of the genus *Lyda* one is almost identical with *L. inanita* of Villiers, a common British insect.

All the *Ichneumonidæ* are from Hiogo in South Japan; the *Tenthredinidæ* are partly from Hiogo and partly from Hakodadi, in North Japan.

Fam. TENTHREDINIDÆ, Leach.

Genus HYLOTOMA, Fabr.

1. *Hylotoma nigritarsis*.

Female.—Length $5\frac{1}{2}$ lines. Blue-black; the palpi rufotestaceous; the antennæ black. Thorax shining, and covered with a fine hoary pile, observable in certain lights; the wings flavo-hyaline, the nervures fuscous, the costal nervure yellow; a brown fascia crosses the anterior wings from the stigma, the latter dark brown; the tibiæ yellowish-white, the intermediate and posterior pairs black at their apex; the anterior tarsi pale, the two apical joints blackish. Abdomen shining, the apex more or less pilose.

Hab.—Hiogo.

This species most closely resembles the *Hylotoma violacea* of Klug.

2. *Hylotoma imperator*.

Female.—Length 4 lines. Shining blue; the antennæ black; the wings dark fuscous, with a blue iridescence, palest at their apical margins; the legs obscurely blue.

Male.—Differs in having the antennæ longer than the head and thorax, extending to the middle of the abdomen, and having a fringe of fine pubescence beneath.

Hab.—Hiogo.

This species closely resembles the *Hylotoma enodis*, but in both sexes the antennæ are considerably longer and thicker. This must be a common species, twelve examples having been received.

3. *Hylotoma humeralis*.

Female.—Length $3\frac{1}{2}$ lines. The head, and the two lateral divisions of the mesothorax, black, with more or less of a blue or green tinge; the pectus is of the same colour; the thorax otherwise reddish-yellow; the abdomen yellow; the legs black, with the femora tinged with blue; tibiæ and tarsi black; wings subhyaline, and clouded with fuscous towards their base, where they are darkest.

Var. The yellow central space on the mesothorax blackish in the middle.

Male.—Smaller, and with the head and thorax entirely nigro-æneous; the legs yellow, with the base of the femora, the apical joints of the anterior and intermediate tarsi, the

apex of the posterior tibiæ and the tarsi black; abdomen yellow, the segments above have transverse fuscous bands in the middle.

Hab.—Nagasaki; Hiogo.

4. *Hylotoma ephippiata*.

Female.—Length $3\frac{1}{2}$ lines. Shining blue-black, with the sides of the prothorax, and the two lateral divisions of the mesothorax, orange-red; the orange colour extends beneath the anterior wings to the sides of the pectus; the antennæ black; the anterior tibiæ obscurely ferruginous within; wings fuscous and iridescent, darkest towards their base.

Male.—Differs in having the mesothorax entirely blue-black.

Hab.—Hiogo.

This species is most closely allied to *Hylotoma thoracica* of Spinola, but that insect has the thorax entirely red above.

5. *Hylotoma simillima*.

Female.—Length 4 lines. Blue-black, shining; the antennæ black; the tibiæ and tarsi obscurely blue; wings fusco-hyaline, the anterior pair dark fuscous at their base, shading off towards the apex of the wings; the nervures black.

Male.—This sex is of the same colour as the female, and only differs in being rather smaller, and in the usual characteristics of the sex.

Hab.—Hiogo.

This species is readily distinguished from *H. imperator*; it is of a duller blue, and the antennæ in both sexes are much shorter; the second apical cell is longer in both sexes.

6. *Hylotoma similis*.

Female.—Length $4\frac{1}{2}$ lines. Head and thorax blue-black; the abdomen yellow. The sides of the thorax, beneath the wings, yellow; the wings fuscous, palest towards their apical margins, and with a blue or violet iridescence; the nervures black.

Hab.—Hiogo.

The only essential difference between this insect and

H. pagana of Europe is its having a large yellow patch beneath the wings.

7. *Hylotoma pagana*, Panz.

Female.—Length 4 lines. Head and thorax blue-black; the abdomen yellow; wings fuscous, their apical portion palest.

Hab.—Hakodadi.

I consider this identical with the European species.

8. *Hylotoma trinotata*.

Female.—Length 4 lines. Head black; thorax and abdomen yellow. Head shining and with a thin, short, cinereous pubescence on the face; antennæ black. Thorax: a large ovate black spot on the mesothorax in front and an oblong one on each side between the tegulæ; wings slightly fuscous, darkest towards their base, the nervures black; the posterior coxæ, trochanters and tibiæ yellow. Abdomen very shining bright yellow.

Hab.—Hiogo.

9. *Hylotoma captiva*.

Female.—Length 5 lines. Purple, with the thorax ferruginous above. Head shining and having a little short, fine, pale pubescence on the face. The prothorax entirely ferruginous; the mesothorax is ferruginous above and half-way down the sides beneath the wings; the scutellum ferruginous, with a purple spot behind; the wings fuscous, the posterior pair and apical portion of the anterior wings palest. The abdomen very glossy and having tints of blue and purple.

Hab.—Hiogo.

Genus SELANDRIA, Leach.

1. *Selandria nigriceps*.

Female.—Length 3 lines. Luteous; the head black, wings fuscous. The apex of the tibiæ, and the tarsi, black; the region of the scutellum dusky; the nervures of the wings and the stigma black, the wings palest towards their apical margins.

Hab.—Hiogo.

Genus *STRONGYLOGASTER*, Dahlb.1. *Strongylogaster iridipennis*.

Female.—Length 4 lines. Black, wings hyaline and brilliantly iridescent, nervures and stigma fuscous; legs pale. Head black, with the palpi pale. Thorax: the tegulæ, and a minute spot on each side of the post-scutellum, white; legs pale ferruginous, the coxæ and trochanters, the apex of the posterior tibiæ above, and the tarsi, black; the base of the posterior tibiæ white. Abdomen: above, subcarinate in the middle, longitudinally; the apical margins of the third, fourth and fifth segments narrowly ferruginous; beneath, the third and three following segments ferruginous.

Hab.—Hakodadi.

Genus *PACHYPROTASIS*, Hartig.1. *Pachyprotasis erraticus*.

Male.—Length 4 lines. Black, pale yellow beneath. Head: antennæ pale testaceous beneath, and as long as the body; the face, as high as the insertion of the antennæ, the mandibles, cheeks, and an interrupted narrow line on the vertex, testaceous. Thorax: two longitudinal oblique lines on the mesothorax, the tegulæ, scutellum and two minute spots behind it, testaceous; wings hyaline and iridescent, the nervures black; the legs with a black line above, the pectus with two ovate spots, and a longitudinal line beneath the wings (which unites with two perpendicular lines), testaceous. Abdomen: a triangular spot on the first segment, and a short transverse line in the middle of the apical margins of the third and fourth segments, white.

Hab.—Hakodadi.

This species is extremely like the European *P. simulans*.

Genus *MACROPHYA*, Dahlb.1. *Macrophya nigropicta*.

Female.—Length 5½ lines. Yellow, with black markings. Head: the antennæ, a somewhat irregular circular spot on the vertex, enclosing the ocelli, a semicircular spot behind the eyes, and the head behind the vertex, black. Thorax: the mesothorax has above a triangular spot

anteriorly, and an oblong one on each side, black; wings hyaline, faintly tinged with yellow towards their apex, with the nervures fuscous; the posterior femora with a black line towards their apex within; the tibiæ and tarsi black, with the base of the former pale. Abdomen: a black fascia at the base of all the segments above; the entire insect yellow beneath, excepting a circular black spot on the pectus.

Hab.—North Japan.

2. *Macrophya vexator*.

Female.—Length $4\frac{1}{4}$ lines. Shining black, with white markings. Head: the clypeus, the inner orbits of the eyes and the lower portion of the hinder orbits, white; the sixth, seventh and eighth joints of the antennæ white, the apical joint black. Thorax: the anterior tibiæ and tarsi in front, the posterior coxæ, trochanters and base of the femora, white; the apical half of the first joint of the posterior tarsi and the second and third joints white. Wings subhyaline, the nervures fuscous, the stigma white at the base.

Hab.—North Japan.

3. *Macrophya apicalis*.

Female.—Length 5 lines. Black, with the scutellum and four apical joints of the antennæ white, the tip of the ninth black. Head: the labrum and base of the mandibles white. Thorax: two minute spots on the post-scutellum, a large oblong-ovate spot on the posterior coxæ exteriorly, their extreme apex and the trochanters white; wings hyaline, with a faint yellow tinge, and brightly iridescent; the nervures black. Abdomen glossy black.

Hab.—Hakodadi.

4. *Macrophya pacifica*.

Female.—Length $4\frac{3}{4}$ lines. Black, with an orange fascia near the base of the abdomen. Head: the antennæ reddish-yellow, the two basal joints black at their extreme apex. Thorax: two minute yellow spots below the scutellum; the anterior and intermediate femora above, and all the tarsi, reddish-yellow; the extreme base of the posterior femora yellow; the apical third of the posterior tibiæ, and the tips of the joints of the tarsi black; wings flavo-hyaline, the nervures fuscous, the stigma pale tes-

taceous. Abdomen: the second segment reddish-yellow above, slightly interrupted in the middle.

Male.—This differs in having the base of the antennæ, to nearly the apex of the third joint, black; it has also the second and third segments of the abdomen yellow, and slightly interrupted.

Hab.—North Japan.

5. *Macrophya ferox*.

Female.—Length $5\frac{3}{4}$ lines. Black, with the four basal segments of the abdomen yellow. Head: antennæ orange-yellow; the clypeus anteriorly, the labrum, mandibles and palpi, white; the scape of the antennæ black in front. Thorax: the posterior margin of the prothorax laterally, the tegulæ, scutellum and posterior margin of the metathorax narrowly reddish-yellow; a minute spot on each side of the post-scutellum white; the anterior and intermediate legs reddish-yellow; the posterior tarsi, and rather more than the basal half of the posterior tibiæ of the same colour; the apex of the posterior coxæ and the trochanters whitish; wings hyaline and iridescent, faintly tinged with yellow, the nervures fuscous, the costal nervure and the stigma reddish-yellow.

Hab.—Hakodadi.

6. *Macrophya ignava*.

Female.—Length 4 lines. Black; the head, legs and thorax with white markings. Head: the clypeus, labrum and mandibles white. Thorax: the margins of the prothorax, a spot on the tegulæ in front and two minute spots behind the scutellum, white; the apex of all the coxæ, the trochanters, and extreme base of the femora, and all the tibiæ, white; the extreme apex of the intermediate and posterior pairs black. The head and thorax are thinly covered with pale down, and the abdomen has a silky pile, only observable in certain lights.

Hab.—Hiogo.

This species closely resembles the *Allantus albicinctus*, of Klug, but in four examples not a trace of the white narrow fascia on the basal segment is to be seen, or of the white tip of the abdomen.

7. *Macrophya irritans*.

Male.—Length $5\frac{1}{2}$ lines. Head and thorax black, with yellow markings, the abdomen reddish-yellow. Head: antennæ reddish-yellow; the anterior margin of the clypeus, the labrum and mandibles, white; the palpi, and a stripe behind the eyes, yellow. Thorax: the posterior margin of the prothorax laterally, the tegulæ, the tips of the coxæ and the legs, reddish-yellow; wings hyaline, iridescent, having a faint yellow tinge, the nervures fuscous, the costal nervure and stigma yellow. Abdomen: the fourth and three following segments have each two quadrate fuscous spots, more or less distinctly marked, the apical one darkest.

Hab.—North Japan.

8. *Macrophya carbonaria*.

Female.—Length 5 lines. Shining-black, head and thorax strongly punctured, the abdomen with finer shallow punctures. The head, thorax and legs have a short pale silky pubescence. A spot on each side of the clypeus, its anterior margin, the base of the mandibles, the anterior tibiæ in front and the tip of the femora, a large oblong-ovate spot on the posterior coxæ, and the middle of the posterior tibiæ above, white; wings hyaline, faintly tinged with yellow, the nervures and stigma black.

Hab.—Hakodadi.

9. *Macrophya timida*.

Female.—Length $4\frac{1}{2}$ lines. Black, punctured and shining. The head and thorax strongly punctured, the abdomen with fine shallow punctures; the base of the mandibles, a large ovate spot outside the posterior coxæ, their extreme apex and the trochanters, white; the apex of the anterior femora in front, the tibiæ in front and the apex of the intermediate pair in front, pale testaceous; the anterior tarsi pale beneath; the wings hyaline, their nervures black.

Hab.—North Japan.

10. *Macrophya luctifera*.

Female.—Length $3\frac{1}{2}$ lines. Shining-black; the tips of the anterior femora in front, and the tibiæ also in front,

white; the posterior trochanters and the base of the tibiæ outside, white; two minute white spots beneath the scutellum; the wings fuscous, the nervures black, the stigma white at the base.

Hab.—Hiogo.

11. *Macrophya flavipes*.

Female.—Length 4 lines. Black; the antennæ, legs and two basal segments of the abdomen pale yellow. Head: the clypeus, mandibles and palpi pale; the vertex brown. Thorax: the scutellum and disk of the mesothorax obscurely testaceous; the tegulæ, and a short line before them, pale testaceous; the wings hyaline and tinged with yellow towards their base; the nervures fuscous, the costal nervure pale testaceous, the stigma black. Abdomen: rather more than the basal half beneath pale testaceous.

Hab.—Hiogo.

Genus TENTHREDO, Linn.

1. *Tenthredo erratica*.

Female.—Length $7\frac{1}{2}$ lines. Reddish-yellow, with a spot on the vertex, which encloses the ocelli, three spots on the mesothorax and the four apical segments of the abdomen, black. Head: the clypeus, labrum and mandibles pale yellow, the tips of the latter black. Thorax: the sides and also the pectus black; the base of the anterior and intermediate coxæ black; a yellowish-white spot before the posterior coxæ; a triangular black spot on the mesothorax anteriorly, and an oblong one on each side; wings flavo-hyaline, nervures fuscous; the costal nervure and the stigma yellow. The male has the antennæ, beyond the second joint, black.

Hab.—Hakodadi; Siberia.

This species is, in my opinion, identical with one received from Trans-Baikal and Angara, in Siberia; it closely resembles the *Tenthredo flavicornis* of Europe, and will probably be considered a climatal variety by some Hymenopterists. Thomson describes *T. flavicornis* as having the posterior femora black; it may be so in Sweden, but it is only a variety in Germany.

2. *Tenthredo providens*.

Female.—Length 7 lines. Black, the three basal joints of the antennæ, the scutellum, and base of the abdomen, pale yellow. Head: the clypeus, labrum, mandibles and palpi yellowish-white; the cheeks at the base of the mandibles testaceous; the tips of the mandibles black. Thorax: the margin of the prothorax in front of the tegulæ pale testaceous; the scutellum and legs yellow; the posterior tibiæ black towards their apex; a white spot above the posterior coxæ; all the coxæ black, with their apex yellow; wings hyaline and iridescent, the apex of the anterior pair dark brown at their apex beyond the stigma; the nervures black, except the costal one and the stigma, which are testaceous. Abdomen black, with the three basal segments pale yellow.

Hab.—North Japan.

3. *Tenthredo scalaris*, Klug.

With the exception of this insect being considerably larger than the European species, I am unable to point out any difference; only a single example has been received. The cabinet specimens are pale yellow, when living they are green; the antennæ black, with the scape yellow in front; a transverse ovate black spot on the vertex, enclosing the ocelli, with a line on each side of the anterior ocellus. The mesothorax black above, with two oblique yellow lines on each side, in the middle; the scutellum yellow. Abdomen: a longitudinal broad black stripe extending from the base to apex; in European examples, the apical margins of the segments are sometimes narrowly yellow; a narrow black line on the femora and tibiæ, and the tips of the joints of the tarsi, black.

Length of Japanese specimens $6\frac{1}{2}$ lines; of European ones $4\frac{1}{2}$ to 5 lines.

Hab.—Hakodadi.

4. *Tenthredo hilaris*.

Female.—Length 7 lines. Black, with the extreme lateral margins of the abdomen yellowish-white; the anterior and intermediate legs pale ferruginous, with the posterior tibiæ and tarsi black. Head: the clypeus, labrum and mandibles pale yellow, the tips of the latter black.

Thorax: the posterior margin of the prothorax pale yellow, narrowly so in the middle; the tegulæ yellow; a transverse narrow line on each side of the scutellum, two minute spots on each side of the post-scutellum, and the hinder margin of metathorax, narrowly yellowish-white; wings hyaline and iridescent, the nervures fuscous, the costal one pale ferruginous; the posterior coxæ black towards their base, with a white spot above them. Abdomen smooth and shining, with the apical margins of the two basal segments narrowly whitish.

Hab.—North Japan.

5. *Tenthredo volatilis*.

Female.—Length $4\frac{1}{2}$ lines. Black, with the four apical joints of the posterior tarsi white; the apex of the claw-joint shining black; the labrum white. The scutellum white, wings hyaline, the nervures and stigma black; the anterior tibiæ at their apex in front, a large ovate spot on the posterior coxæ at their base outside, and the posterior trochanters, white.

Hab.—Hiogo.

Genus DOLERUS, Leach.

1. *Dolerus ephippiatus*.

Female.—Length $5\frac{1}{2}$ lines. Head and thorax black, the pro- and meso-thorax ferruginous; abdomen shining black, with an obscure green tinge; the insect has a thin hoary pubescence, most observable on the head, thorax and towards the apex of the abdomen; the middle of the pectus black; wings clear hyaline; the nervures and stigma black; the head rugose.

Hab.—Hakodadi; Hiogo.

2. *Dolerus fuscipennis*.

Female.—Length $3\frac{3}{4}$ lines. Black, and having a thin, short, hoary pubescence; two white minute spots behind the scutellum; the wings fuscous; the anterior tibiæ in front, the posterior trochanters, and the tibiæ outside, white. Abdomen: the fourth and fifth segments have a short white line at their lateral margins.

Hab.—Hiogo.

3. *Dolerus subfasciatus*.

Female.—Length $4\frac{3}{4}$ lines. Black, the head and thorax closely punctured, the abdomen smooth and shining, the fourth segment obscurely reddish-brown; the head and thorax have a thin, short, tawny pubescence, there is a thinly scattered similar pubescence on the abdomen; the tips of the anterior femora, and the tibiæ, pale ferruginous; wings hyaline, the nervures and stigma black.

Hab.—Hiogo.

4. *Dolerus nigro-cæruleus*.

Male.—Length 3 lines. Blue-black, variegated with white. Head: wider than the thorax, slightly narrowed behind the eyes, which are large, globose and extend to the base of the mandibles; the clypeus and mandibles white. Thorax: the anterior and intermediate legs, the posterior coxæ, trochanters and the base of the tibiæ beneath, white; wings subhyaline and iridescent, the nervures black. Abdomen: the middle of the second and third segments above, a spot in the middle of the seventh segment and the apical segment above, white; beneath, the middle of two or three of the basal segments white.

Hab.—Hiogo.

Genus LYDA, Fabr.

1. *Lyda volatilis*.

Female.—Length 4 lines. Black, variegated with white; the legs white, wings hyaline, their nervures and stigma black. Head: below the antennæ, a minute spot above them, on each side of which is a narrow curved line that touches the eyes and unites with the anterior part of the face, white; the cheeks, mandibles and palpi white. Thorax: a spot on each side of the posterior margin of the prothorax, a spot on the tegulæ, a triangular one on the mesothorax anteriorly, the scutellum and an oblique stripe beneath the wings, white. Abdomen: the posterior margins of the segments, except one or two of the basal ones, white.

Hab.—North Japan.

2. *Lyda venustus*.

Female.—Length $5\frac{1}{2}$ lines. Head, thorax, base and apex of the abdomen, black; the intermediate segments

of the latter orange-yellow ; the head and thorax with yellowish or white markings. Head : before the antennæ, the mandibles, palpi, a broad stripe, notched at its outer margin, curves backwards from the summit of the eyes to their posterior margin, and two minute longitudinal spots between the stripes, pale yellow ; the scape of the antennæ yellow ; the tips of the mandibles, the antennæ and the cheeks ferruginous. Thorax : the posterior margin of the prothorax, the scutellum, post-scutellum and the legs pale yellow ; wings flavo-hyaline, the nervures fuscous, towards the base of the wings they are pale ferruginous, as is also the costal nervure ; beneath, three of the apical segments have their apical margins yellowish-white.

Hab.—Hakodadi.

This species resembles the *Lyda inanita* of Europe.

3. *Lyda latifrons*. ✓

Female.—Length $4\frac{1}{2}$ lines. Black, variegated with pale yellow, the legs yellow. Head : the anterior portion below the insertion of the antennæ, a spot above the antennæ, a narrow curved line each side of it, which touches the margin of the eyes, and unites with the yellow margin of the face, a broader line behind the eyes, which passes up to the margin of the vertex and unites with a line that runs from the summit of the eyes, and two minute spots, situated in deep excavations on the vertex, yellow ; antennæ black. Thorax : an interrupted line on the elevated posterior margin of the prothorax, a triangular spot on the mesothorax anteriorly, a spot on the tegulæ, the tubercles and two oblique lines beneath the wings, the scutellum and post-scutellum, yellow ; the wings hyaline, the nervures black. Abdomen beneath and three of the apical segments with a narrow fascia on their posterior margins ; beneath yellow, with two or three of the basal segments black.

Hab.—Hakodadi ; Hiogo.

This species is most closely allied to the *Lyda pratensis* of Europe.

Genus CEPHUS, Latr. ✓

1. *Cephus viator*. ✓

Female.—Length 6 lines. Shining black, the thorax and abdomen with yellow bands. Head : a minute yellow spot between the posterior ocelli and the eyes, situated in

deep pits. Thorax: the posterior margin of the prothorax, which is deeply incised, yellow; the posterior coxæ above, the tips of the femora, the tibiæ and tarsi yellow; the wings hyaline, the nervures ferruginous. Abdomen: a triangular spot on the first segment; a yellow band on the posterior margin of the third segment laterally, and an entire one on the fourth, sixth and seventh segments; beneath black.

Hab.—Hakodadi.

I have given this insect a distinctive specific name, but I believe it to be the same species as Stephens' *Cephus quinque-fasciatus*; it only differs in wanting a minute spot or two on the face, in having the first marginal band widely interrupted, and in wanting the two apical ones, a variety I should expect to occur in a series of British specimens.

2. *Cephus agilis*.

Male.—Length $5\frac{1}{4}$ lines. Shining black; the face and the abdomen spotted with pale yellow. Head: the face as high as the insertion of the antennæ, and the mandibles, yellow, the latter tipped with black. Thorax: the anterior and intermediate femora in front, and their tibiæ, yellow, the latter slightly fuscous behind; the tarsi fuscous; the posterior tibiæ yellow at their base; wings hyaline, the nervures fuscous. Abdomen: a triangular patch on the first segment, the third segment with its apical margin laterally, and the fourth with the entire margin narrowly, yellow in the middle, and more widely so laterally.

Hab.—Hiogo.

Genus SIREX, Linn.

1. *Sirex japonicus*.

Female.—Length $9\frac{1}{2}$ —14 lines. Black, the head yellow; between the eyes black, and a narrow line from thence to the posterior margin of the vertex; sometimes the head is entirely yellow as well as the antennæ and mandibles. Thorax: the prothorax above, the femora, tibiæ and tarsi yellow; the posterior pair more or less fuscous; wings flavo-hyaline, with a fuscous cloud at their apical margins; the nervures ferruginous. Abdomen: the first, second

and eighth segments yellow, the posterior margin of the latter black; the apical spine yellow.

Hab.—Hiogo.

This species closely resembles *Sirex flavicornis* of North America; it differs from that insect in some important particulars,—the yellow band, in the American species, occupies the seventh and half of the eighth segment; this insect has the apical margin yellow.

Fam. ICHNEUMONIDÆ.*

Genus ICHNEUMON, Linn.

1. *Ichneumon generosus*.

Male.—Length $7\frac{1}{4}$ lines. Black, scutellum pale, abdomen red, black and yellow. Head: the face and antennæ, mandibles and palpi pale yellow. Thorax: the tegulæ and a short line in front of them, the scutellum and legs, yellow; the posterior coxæ and trochanters beneath, and the apex of the femora and tibiæ, black; the wings flavo-hyaline, the nervures fuscous, with the stigma yellow. Abdomen: the first segment, the basal half of the third, and the fourth and fifth segments, black; a yellow spot on each side of the apex of the first segment; a broad yellow band on the third segment notched in the middle; beneath, the second, third and fourth segments reddish-yellow.

2. *Ichneumon cognatorius*.

Female.—Length 11 lines. Black, the scutellum white; the antennæ have the joints nine to fourteen white beneath; the face has a narrow line at the inner margin of the eyes towards their summit yellowish-white; the anterior tibiæ in front and the tips of the femora of the same colour; the wings dark fuscous.

Male.—Length $9\frac{1}{2}$ lines. Black: the face, below the antennæ, and a narrow line at the inner margin of the eyes, an abbreviated line behind the eyes at the base of the mandibles and the palpi, white. Thorax: the lateral margins of the prothorax above, the outer margin of the tegulæ, a spot beneath the wings, the scutellum, and a minute spot on each side of the metathorax posteriorly, white; the anterior and intermediate coxæ and trochanters

* All the *Ichneumonidæ* are from Hiogo

spotted with white, their femora and tibiæ in front, and the three basal joints of the tarsi, white; the joints tipped with black; the posterior legs have the tips of the trochanters and basal half of the tibiæ white. Abdomen: the posterior margin of the first segment and a minute spot on each side of apical margin of the second segment, white.

Var. 1, ♂. Only differs in having the face black, with only a narrow line at the inner margins of the eyes.

Var. 2, ♂. The face black and the spots on the second segment of the abdomen wanting.

Var. 3, ♂. Has the face white, with the abdomen entirely black.

Var. 1, ♀. Black, with the apical third of the antennæ and the anterior tibiæ in front obscurely pale yellow.

This species is almost identical with the European one, *Ichneumon Proteus*, the male of which is *I. laminatorius*; indeed, it would be difficult to point out a specific difference; on examining a series of ten males and eight females in the British Collection at the Museum, both sexes are constant in having the scutellum white; all the males have the face white below the insertion of the antennæ. The Japanese specimens have the wings much darker than *Ichneumon Proteus*.

3. *Ichneumon doliturus*.

Male.—Length $4\frac{1}{4}$ lines. Black: the face, and scape of the antennæ in front, white. The anterior femora in front, the apex of the intermediate pair and the tibiæ and tarsi of both pairs, white; the basal half of the posterior tibiæ, and the spines at their apex, white; wings subhyaline, their nervures and stigma black. Abdomen shining.

4. *Ichneumon cursorius*.

Female.—Length 6 lines. Head and thorax black, abdomen red and black, scutellum yellow. Head: the face below the antennæ and a line at the inner margin of the eyes ferruginous; antennæ obscurely ferruginous, with five or six of the middle joints white. Thorax: the legs rufo-piceous, with the coxæ, and posterior femora above, black; wings subhyaline, the nervures black, the stigma yellow. Abdomen: the first segment and the apical margins of the following segments black.

Male.—Differs in having the head entirely black; the

thorax has a minute yellow spot in front of the tegulæ; the abdomen has the three basal segments ferruginous, the rest black.

5. *Ichneumon flavitarsis*.

Male.—Length $7\frac{1}{4}$ lines. Black, with the scutellum and the legs partly yellow. Head: the face and scape of the antennæ in front pale yellow; the palpi white. Thorax: the margins of the prothorax towards the tegulæ, the latter in front and a line beneath the wings, pale yellow; wings hyaline and iridescent; the anterior femora in front fulvous; all the tibiæ and tarsi yellowish-white, the posterior tibiæ at their apex and the tips of the two first joints of the tarsi fuscous; the insect very closely punctured; the apical half of the abdomen with an obscure blue tinge.

This species closely resembles *Ichneumon multiannulatus* of Europe, but the latter has the posterior tarsi black, except the base of the first joint.

6. *Ichneumon virulentus*.

Female.—Length 4 lines. Black, with the two apical segments of the abdomen white. Four or five of the middle joints of the antennæ white beneath. The thorax and legs have a fine, short, hoary down; the anterior and intermediate tibiæ white outside; the spines at the apex of all the tibiæ white; the wings subhyaline; the metathorax has two central enclosed spaces, the first half the size of the second; on each side of these are two enclosures. The entire insect is closely punctured and semi-opaque, with the three apical segments of the abdomen shining.

7. *Ichneumon improvidus*.

Male.—Length $4\frac{1}{2}$ lines. Black, with the face below the antennæ and the scape in front white. The flagellum of the antennæ fulvous beneath; the mandibles and palpi white. The anterior and intermediate femora towards their apex, and their tibiæ and tarsi, rufo-testaceous; the wings subhyaline; the enclosed space at the base of the metathorax horseshoe-shaped, with two oblique carinæ, also two lateral carinæ, the intermediate spaces rugose. Abdomen elongate, shining, and finely punctured towards the base.

8. *Ichneumon incanescens.*

Female.—Length $6\frac{1}{2}$ lines. Black; with the margins of the two apical segments of the abdomen broadly yellowish-white; the thorax and legs covered with a short hoary down, particularly at the sides and beneath the former. Five or six of the middle joints of the antennæ white beneath. Thorax: the metathorax has above, at its base, an oblong space enclosed by a carina, from the apex of which an oblique carina runs to the lateral margins, which are also carinated; the usual carina, which crosses the space between the lateral margins and the oblong space, is obsolete in this species; all the tarsi, and the anterior, and intermediate tibiæ in front, rufo-testaceous, the tarsi more or less dusky above; the entire insect very closely punctured and opaque, except the three apical segments of the abdomen, which are shining; wings subhyaline.

9. *Ichneumon vexator.*

Female.—Length 5 lines. Black; the scutellum yellow; the apex of the abdomen white above. Head: two yellow spots on the anterior margin of the face; five of the middle joints of the antennæ white beneath; a narrow yellow line at the inner margin of the eyes, near their summit. Thorax: on the metathorax above, close to the post-scutellum, a minute transverse space is enclosed by a carina, and immediately beyond is a larger, somewhat horseshoe-shaped, space, from which the usual oblique carinæ run, and between the lateral marginal carinæ and the horseshoe-shape, the space is crossed by a transverse carina; wings fusco-hyaline; the anterior femora in front, the tibiæ, and also the intermediate pair in front, more or less rufo-piceous; their tarsi rufo-piceous beneath. Abdomen: a large white spot on the two apical segments above; the entire insect closely punctured and semi-opaque, except the four apical segments, which are shining.

10. *Ichneumon irritator.*

Female.—Length 6 lines. Black; with the scutellum and apex of the abdomen white. Head: four of the middle joints of the antennæ white beneath. Thorax: a horseshoe-shaped space, enclosed by a carina, at the base of the metathorax, from which an oblique carina runs

towards the apex; between these, two longitudinal carinae run from the horseshoe-shape to the apex; a longitudinal carina at the lateral margins, the space between these and the horseshoe-shape is crossed by a carina in the middle; wings fusco-hyaline; legs black. The entire insect closely punctured and semi-opaque; the first segment of the abdomen above, and two or three of the apical segments, slightly shining.

11. *Ichneumon rufitarsis*.

Female.—Length $7\frac{1}{4}$ lines. Black; the scutellum, and apex of the abdomen above, yellow. Head: six or seven of the joints of the antennæ, in their middle, yellowish-white beneath; a narrow yellow line at the inner margin of the eyes, above the insertion of the antennæ. Thorax: an oblong enclosed space at the base of the metathorax, from which, on each side, a carina runs obliquely towards the apex; the wings fusco-hyaline; the tips of the femora, the tibiæ and tarsi ferruginous, all more or less fuscous above. The entire insect closely punctured and semi-opaque, except the four apical segments of the abdomen, which are shining.

This species closely resembles *Ichneumon relucens* of Europe.

12. *Ichneumon dentatus*.

Female.—Length 6 lines. Black; opaque, with the abdomen only shining; the antennæ fulvous beneath, with the tenth and two following segments white beneath. The lateral margins of the scutellum sharply elevated; a semicircular enclosed space at the base of the metathorax, from which a raised carina passes obliquely to the apical lateral margins, and is there produced into a stout blunt tooth; the anterior femora in front, the tips of the intermediate pair, the tibiæ and tarsi of both pairs, ferruginous, all more or less dusky above; the posterior tarsi, ferruginous beneath; the wings subhyaline.

13. *Ichneumon intrudens*.

Female.—Length $5\frac{1}{2}$ lines. Black, semi-opaque, very closely and finely punctured. Five of the middle joints of the antennæ white beneath. The scutellum, and the basal half of the tibiæ, yellow; the tarsi ferruginous, and more

or less dusky above; the wings fulvo-hyaline, the nervures fusco-ferruginous. The two apical segments of the abdomen have a large yellow spot, and the fourth and fifth segments shining.

Genus CRYPTUS, Fabr.

1. *Cryptus ambulator*.

Female.—Length 7 lines. Scutellum pale; the legs red, black and white. Head: the clypeus in front, the labrum, the scape in front, and a narrow line at the inner margin of the eyes, yellowish-white; three joints of the antennæ, a little beyond the middle, white. Thorax: the scutellum, apex of the metathorax, and a spot on the posterior coxæ behind, pale yellow, the tegulæ are of the same colour; the femora and basal half of the posterior tibiæ fulvous; the apex of the posterior femora, to about one-third of their length, black; the tarsi, and the anterior and intermediate tibiæ, yellowish-white, the claw-joint of the tarsi black; wings subhyaline, their apical margins slightly fuscous. Abdomen black and shining.

2. *Cryptus carbonarius*.

Female.—Length 4 lines. Black and punctured, with the abdomen smooth and shining. Head: four joints in the middle of the antennæ white above. The anterior femora in front, the tibiæ and tarsi, obscure ferruginous; the intermediate tibiæ in front and the tarsi obscure ferruginous; wings subhyaline, with the nervures and stigma black; scutellum shining; the metathorax rugose and obliquely truncate.

3. *Cryptus basalis*.

Female.—Length 3 lines. Black; head and thorax closely punctured and semi-opaque, the abdomen smooth and shining; four joints in the middle of the antennæ white. The tibiæ and tarsi fusco-ferruginous, darkest behind; wings subhyaline, their extreme base yellow, their nervures and stigma black; the metathorax rugose, the posterior lateral angles produced into a short tooth. The basal segment of the abdomen longitudinally striated.

4. *Cryptus penetrator*.

Female.—Length $4\frac{1}{2}$ lines. Black; head and thorax punctured and opaque; abdomen smooth and shining, the

apical segment with a pale spot. The four middle joints of the antennæ white above. The metathorax has a small quadrate enclosed space at its base, and attached to it a larger hexagonal one, from which an oblique carina runs on each side and joins the lateral ones; a transverse carina runs from the middle of the hexagonal space to the lateral carinæ; the anterior spaces thus formed are finely punctured, the posterior ones are rugose; wings fusco-hyaline.

5. *Cryptus punctator*.

Female.—Length $3\frac{1}{4}$ lines. Black; head, thorax and abdomen punctured and semi-opaque. The eighth and three following segments of the antennæ white above. Thorax: the metathorax strongly punctured; the enclosed space at its base large and somewhat horseshoe-shaped, and having the usual lateral and transverse carinæ not very strongly marked; wings subhyaline, the nervures black; the anterior and intermediate femora, towards their apex in front, their tibiæ and tarsi, fulvo-ferruginous; the posterior tibiæ ferruginous at their base to half their length; the second and third joints of the tarsi white.

6. *Cryptus maculipes*.

Female.—Length $3\frac{1}{4}$ lines. Black; the scutellum pale yellow; the apical segment of the abdomen and the trochanters white. Five joints, about the middle of the antennæ, white above. Thorax: the wings fusco-hyaline; the nervures fuscous, the stigma yellow; the anterior femora in front, towards their apex, the tibiæ and tarsi, rufo-testaceous; the intermediate tibiæ and tarsi more obscurely so; the extreme base of the posterior tibiæ pale.

Genus TROGUS, Grav.

1. *Trogus arrogans*.

Female.—Length 13 lines. Head, mesothorax above, and legs, reddish-yellow, otherwise black; wings fulvo-hyaline, the superior pair dark fuscous beyond the areolet, and having a violet iridescence. The antennæ more or less fuscous above; the vertex with a black spot behind the eyes. The mesothorax with a central longitudinal black stripe, which terminates opposite the tegulæ, a broad black stripe on each side of it; the scutellum yellow, much

elevated and conical; the metathorax has at its base, near the post-scutellum, a small shining tubercle, from which, on each side, two divergent carinæ run to the lateral margins, which are also edged with an elevated carina; all the coxæ, the intermediate femora beneath, and the posterior pair, black, tip of the latter yellow; abdomen black, smooth and slightly shining.

This species resembles *Trogus pepsoides*, from North China, described by myself in the Transactions of the Entomological Society of London, vol. ii. (1852); it is, I consider, on a careful comparison of the two insects, distinct; the areolet of the anterior wing is much larger, the metathorax longer, and the basal segment of the abdomen narrower, and differently sculptured; its abdomen is not variegated with ferruginous colour.

Genus PIMPLA, Fabr.

1. *Pimpla destructor*.

Female.—Length 6 lines. Black; scutellum and legs pale. Head: below the antennæ yellow, the clypeus with a central black line, which is swollen near its apex; a narrow line in the emargination of the eyes; the labrum and the scape in front yellow; the flagellum fulvous beneath. Thorax: the scutellum, post-scutellum and tegulæ, pale yellow; wings subhyaline, their nervures black; the legs yellow; the posterior femora ferruginous, their tips black; the tibiæ white, their apex, as well as the tarsi, dark fuscous; the anterior and intermediate coxæ behind and the posterior pair entirely black; the abdomen finely and very closely punctured, and thinly covered with a fine hoary pile.

Var. The labrum, clypeus and the coxæ entirely black; the entire inner margin of the eyes with a narrow yellow line.

Male.—Length $6\frac{1}{2}$ lines. Black; the palpi pale testaceous; the flagellum fulvous beneath. Thorax: the tegulæ and scutellum white; the anterior and intermediate femora, tibiæ and tarsi yellowish-white; wings subhyaline; abdomen as in the female.

2. *Pimpla luctuosa*.

Female.—Length $6\frac{1}{2}$ lines. Black, with the anterior and intermediate femora in front, their tibiæ and tarsi

yellow, the tibiæ dusky behind; wings fusco-hyaline, the nervures black. Abdomen closely punctured, the four basal segments most strongly so.

This species very closely resembles the *Pimpla æthiops* of Europe, but I have never seen an example of that insect with pale intermediate tarsi: this is the principal distinction.

Genus THYREODON, Brullé.

1. *Thyreodon purpurascens*.

Female.—Length 13 lines. Obscure blue-black, with bright purple tints, particularly brilliant on the mesothorax and abdomen; the antennæ yellow, with two or three of the basal joints black. The head closely punctured. The mesothorax closely punctured and with two impressed lines in the centre, which run from the anterior margin and converge at the middle of the disk, the slightly impressed single channel running backward to the scutellum; the scutellum and metathorax both coarsely rugose, the latter having a deep central longitudinal channel; the wings dark fuscous, and with brilliant tints of violet and purple, their base and apical margins dark fuscous; the coxæ and trochanters purple. Abdomen smooth, shining, and having bright purple tints.

Hab.—Hiogo.

The description given by Brullé of *Thyreodon morio* would, to some extent, apply to this species, but it would not distinguish the *morio* of Fabricius, the type of which is in the Banksian Collection, now deposited in the British Museum. That insect is nine lines in length, is black, has the face variegated with yellow; a spot on the mandibles, the scape in front, and the anterior legs, also yellow; the antennæ orange-yellow; wings dark fuscous and with violet iridescence.

Genus ANOMALON, Grav.

1. *Anomalon flavifrons*.

Female.—Length 5 lines. Head and thorax black; legs and abdomen reddish-yellow, with black markings. Head: the face, mandibles and cheeks yellow, as well as the scape in front; the antennæ fulvous beneath and fuscous above; a minute yellow spot at the summit of each

eye. Thorax: the anterior and intermediate coxæ and trochanters bright yellow; the posterior trochanters and femora dusky above; the posterior tibiæ black at their apex; wings hyaline and brightly iridescent, the nervures fuscous, the stigma pale yellow. Abdomen: the base of the first segment above, the second segment above, and the fifth and two following segments, black above.

2. *Anomalon insidiator*.

Female.—Length 15 lines. Head and thorax black; antennæ and legs yellow, the posterior pair variegated with black; wings flavo-hyaline. Head: the face, as high as the antennæ, the cheeks, mandibles and palpi, yellow; the scape above, as well as two or three of the basal joints of the flagellum, black above. Thorax: three longitudinal impressed lines on the mesothorax; the metathorax coarsely rugose, and having a deep central longitudinal channel; wings faintly clouded at their apical margins, the tegulæ and nervures ferruginous; the posterior coxæ, the femora above, and the tibiæ towards their apex, black. Abdomen: the two basal segments, and the two apical segments above, black.

Genus PANISCUS, Grav.

1. *Paniscus unicolor*.

Male.—Length 7 lines. Pale rufous; the face yellowish-white, as well as the scape of the antennæ in front. The mesothorax with two oblique pale impressed lines, which converge towards the scutellum, which is also paler than the mesothorax; wings hyaline, the nervures fuscous, the stigma yellow. The claws of the tarsi ferruginous.

Genus OPHION, Fabr.

1. *Ophion pungens*.

Female.—Length 9 lines. Rufous: the face and also the cheeks yellow; the thorax palest on the sides and beneath; the metathorax slightly rounded at the sides; the wings hyaline and iridescent, the nervures fuscous, the stigma ferruginous.

This species only differs from the *Ophion merdarius* of Europe in the form of the metathorax, which is broader,

the sides being rounded: it has the apex of both the first and second segments of the abdomen swollen as in *O. merdarius*.

2. *Ophion flavopictus*.

Female.—Length 7 lines. Rufous: the head, four narrow lines on the thorax, the scutellum, the sides of the thorax and of the abdomen, pale yellow. The eyes, ocelli, and tips of the mandibles, black; antennæ rufous. Thorax: the two central yellow lines on the mesothorax unite with a quadrate spot before the scutellum; the pectus, and sutures of the thorax, rufous; the coxæ yellow outside; wings subhyaline and iridescent, the nervures fuscous, the stigma pale. The first segment of the abdomen pale.

3. *Ophion unicolor*.

Female.—Length $4\frac{1}{2}$ lines. Rufous; eyes and ocelli black; wings hyaline and iridescent, nervures ferruginous, stigma pale; the tegulæ and scutellum pale.

Genus XYLONOMUS, Grav.

1. *Xylonomus investigator*.

Female.—Length 7 lines. Black: the head shining, finely punctured, the vertex nearly impunctate; the thorax and abdomen very closely punctured and semi-opaque. The face and cheeks with a thin griseous pubescence; the palpi pale testaceous. Thorax pubescent, the pubescence short, thin, and most observable on the sides and beneath; the mesothorax with two oblique impressed lines, which converge to the base of the scutellum; the intermediate space transversely rugulose posteriorly; the metathorax has, at its base, a short central carina terminating at a subtriangular enclosed space, from which two carinæ branch off laterally on each side; the apex of the metathorax has a series of radiating striæ between two arched carinæ, these carinæ terminate laterally in short spines or teeth; wings subhyaline, their nervures black, the tegulæ pale testaceous; the four anterior legs ferruginous, the anterior coxæ being yellowish outside; the posterior tibiæ and tarsi obscurely rufo-piceous. The first and second segments of the abdomen punctured, the following segments very delicately so.

This insect very closely resembles a species from Amoor in Siberia, but must be considered distinct, the latter having the thorax more elongate before the wings; it has also a deep longitudinal channel on the first segment, and it has also two or three joints of the antennæ towards their apex, white.

Fam. BRACONIDÆ.

Genus AGATHIS, Latr.

1. *Agathis atricornis*.

Female.—Length $3\frac{1}{2}$ lines. Rufous: the antennæ and the vertex black; the head deeply concave behind the ocelli. Thorax: the mesothorax with a central and two oblique longitudinal channels; the metathorax with six longitudinal carinæ; the spaces between them are transversely carinate; the tips of the posterior tibiæ, the tarsi above, and the valves of the ovipositor, black; the wings fuscous; the space between the apex of the externo-medial cell, and that of the marginal cell of the anterior wings, dark fuscous; this is crossed by a hyaline fascia at the base of the stigma, it also passes a short way across the posterior wings; the base of the anterior wings subhyaline, and a small hyaline spot at the apex of the marginal cell.

Fam. CHRYSIDIDÆ.

Genus STILBUM, Spin.

1. *Stilbum amethystina*.

Chrysis amethystina, Fabr. Syst. Ent. 539; Ent. Syst. ii. 243; Syst. Piez. 176.

Stilbum splendidum, Dahlb. Hym. Europ. ii. 358 (nec Fabr.).

Hab.—Hiogo.

All authors who have quoted the *S. splendidum* of Fabricius have mistaken his species, although, in his first description, he commences, "Magna. Caput viride, &c.," a term he does not apply to any other species. It is true that he quotes Malabar as one of the localities, but that is evidently an error, since he adds, "In nova Hollandia, Mus. Dom. Banks;" and the description applies to the

Australian insect. *Stilbum amethystina* is also described in his first work, and is readily distinguished as belonging to the genus *Stilbum*, as he describes the scutellum as "prominulo, concavo;" the habitat given is Australia, the type being in "Mus. Dom. Banks." The Banksian Collection is now in the British Museum; I have compared the type with other examples from Australia, and also with Asiatic ones, and cannot detect any specific differences.

Genus CHRYSIS, Linn.

1. *Chrysis Daphne*.

Female.—Length $3\frac{1}{4}$ lines. Head and thorax green, abdomen purple, with shades of gold and coppery brilliancy. Head and thorax, as well as the extreme base of the abdomen, very coarsely punctured, the second segment of the abdomen much more finely and closely punctured, and the third more finely punctured than the second, the apical segment armed with four angular acute teeth; the lateral angles of the apical margin acute, not toothed. A dark blue spot encloses the ocelli; the antennæ black; the head posteriorly dark blue. Thorax: the prothorax with three dark blue spots, and the central division of the mesothorax also obscurely blue; wings hyaline, the nervures testaceous; the legs green, the tarsi fuscous. Abdomen: the apical margin of the first segment golden-green, the lateral margins bright green, with a coppery brilliancy in certain lights; the apical margins of the second and third segments have a similar green and coppery brilliancy; beneath of a steel-blue, with the base of the segments black.

Hab.—Hiogo.

The following four species of *Chalcididæ* are described by Mr. Francis Walker, whose works on that family of insects are so well known to Entomologists; he also kindly described the new species of *Epyris* belonging to the family *Proctotrupidæ*.

Fam. CHALCIDIDÆ.

Genus CHALCIS, Fabr.

1. *Chalcis obscurata*.

Male.—Length $2\frac{3}{4}$ lines. Nigra, abdomen apicem versus cinereo-tomentosum; femora, apicis tibiæ tarsisque flava;

tibiæ subtus nigro-vittatæ; tibiæ postice basi nigræ; alæ cinereæ.

Male.—Body, antennæ and legs black, with the usual structure. Body convex. Head and thorax scabrous, dull. Antennæ stout, nearly filiform. Prothorax about four times as broad as long. Sutures of the parapsides distinct. Abdomen smooth, shining, subsessile, with cinereous tomentum towards the tip. Femora yellow at the tips, hind femora minutely denticulated beneath. Tibiæ yellow, striped beneath with black; hind tibiæ black at the base. Tarsi yellow, tips black. Wings cinereous; squamulæ yellow; veins black; ulna about half as long as the humerus.

Hab.—Hiogo.

Perhaps a variety of *C. inclinator*, a native of Ceylon, Celebes and Aru; the black hue predominates a little more on the legs, and the wings are cinereous, not pellucid. The Chinese specimens included with *C. inclinator* belong to *C. obscurator*.

Genus EPITRANUS, Walk.

1. *Epitranus albipennis*.

Female.—Length $1\frac{1}{2}$ line. Niger; petiolus gracilis, elongatus; abdomen fusiforme subcompressum, thorace brevius et multo angustius; pedes quatuor anteriores lutei; pedes postici picei, femoribus inermibus; alæ albæ.

Body black, convex. Head and thorax scabrous, slightly shining. Head a little broader than the thorax. Antennæ black, subclavate, very much shorter than the thorax. Prothorax about twice as long as broad. Sutures of the parapsides strongly marked. Scutellum small. Metathorax large, obliquely sloping. Petiole slender, cylindrical, as long as the hind coxæ and more than half as long as the abdomen. Abdomen fusiform, smooth, shining, slightly compressed, shorter and much narrower than the thorax. Four anterior legs luteous. Hind legs piceous; coxæ very long; femora incrassated, not denticulated; tibiæ slightly curved. Wings white, veins whitish; ulna shorter than the humerus; radius none; cubitus short; stigma small.

Hab.—Hiogo.

Genus HALTICELLA, Spin.

1. *Halticella apicalis*.

Female.—Length $2\frac{1}{2}$ lines. Nigra; antennæ filiformes; metathorax tricarinatus; abdomen longi-ovatum, subsessile,

thorace æquilongum; femora postica, tibiæ apice tarsisque quatuor anteriores rufa; alæ fuliginosæ.

Body black, convex. Head and thorax finely punctured, slightly shining. Head as broad as the thorax; front deeply excavated as usual. Antennæ black, filiform, inserted near the mouth, shorter than the thorax. Prothorax about four times as broad as long. Sutures of the parapsides distinct. Paraptera and scutellum large. Metathorax with three keels. Abdomen elongate-oval, smooth, shining, subsessile, acute at the tip, about as long as the thorax; first joint as long as the five following together. Legs black; four anterior tarsi, tips of tibiæ and hind femora red, the latter incrassated. Wings smoky-brown; veins black; humerus a little more than half as long as the wing; ulna about one-sixth as long as the humerus; radius and cubitus extremely short.

Hab.—Hiogo.

Genus EURYTOMA, Illig.

1. *Eurytoma antica*.

(*Eurytoma*)
Female.—Nigra; antennæ subfiliformes, basi luteæ; prothorax longissimus, antice latior; metathorax sulcatus; pedes lutei, femoribus tibiisque apud medium piceis; alæ diaphanæ, corpore multo breviores.

Female.—Length $2\frac{1}{2}$ — $2\frac{3}{4}$ lines. Body black, long, slender, convex. Head slightly shining, finely punctured, somewhat broader than the prothorax. Antennæ black, nearly filiform, much shorter than the thorax; 1st joint luteous, slender, linear; 2nd small, subeyanthiform, mostly luteous; 3rd—8th linear, successively decreasing in length; club fusiform, a little longer than the 3rd joint. Thorax dull, finely scabrous. Prothorax large, subquadrate, slightly widening from the fore-border to the hind-border. Scutum of the mesothorax a little shorter and narrower than the prothorax, with well-defined sutures of the parapsides. Scutellum rather small. Metathorax tapering hindward, with a middle longitudinal furrow. Petiole short, slender, distinct. Abdomen elongate-fusiform, quite smooth, highly polished, a little narrower than the mesothorax, and about as long as the whole thorax; 2nd segment much shorter than the 1st and than the 3rd; 4th larger than the 1st and the 3rd; 3rd as long as the 2nd; 6th longer than the 4th. Legs luteous; femora and tibiæ piceous, except towards each end; fore-tibiæ occasionally wholly luteous; tarsi with piceous tips.

Wings limpid, much shorter than the body; veins piceous; humerus rather more than half the length of the wing; ulna about one-fourth the length of the humerus; radius much shorter than the ulna; cubitus a little shorter than the radius; stigma small.

Hab.—Hiogo.

It agrees in some characters with the species included under the generic name *Isosoma*, which, as I have before mentioned, I purpose reuniting to *Eurytoma*.

Fam. PROCTOTRUPIDÆ.

Genus EPYRIS, Westw.

1. *Epyris apicalis*.

Female.—Length 4 lines. Nigra; antennæ piceæ, basi nigre; metathorax scite striatus; abdomen apice rufum, segmentis ventralibus picco-marginatis; tarsi ferrugini; alæ fuscæ.

Body black, shining, nearly linear; head and thorax thinly and finely punctured, slightly convex. Head transverse, much broader than the thorax. Antennæ piceous, curved; scape black; prothorax small, transverse, narrower in front. Scutum large. Scutellum small. Metathorax very large, flat, finely sculptured above with longitudinal striæ, nearly perpendicular hindward. Petiole very short. Abdomen lanceolate, convex, smooth, red at the tip, a little longer than the thorax; hind border of the ventral segments piceous. Legs short, stout; tarsi ferruginous. Wings brownish, a little longer than the thorax; veins black.

Tribe HETEROGYNA, Latr.

Fam. FORMICIDÆ.

GENUS CAMPONOTUS, Mayr.

1. *Camponotus ligniperdus*, Mayr, Europ. Formicid. 35.
Formica ligniperda, Latr. Hist. Nat. Fourm. 88;
 St. Farg. Hym. i. 209; Ny-
 land. Adm. Mon. Form. 898;
 Form. France et Algér. 55;
 Foerst. Hym. Stud. Form.

Hab.—France; Germany; Austria; Finland; Siberia; Japan.

2. *Camponotus japonicus*, Mayr, Diag. neue Formicid. 1, ♀.

3. *Camponotus vitiosus*.

Worker.—Length $2\frac{3}{4}$ lines. Shining-black; the antennæ and legs rufo-piceous, the tarsi and joints of the legs palest; the mandibles obscure rufo-piceous. Head oblong, subquadrate. Thorax narrowed posteriorly, the metathorax obliquely truncate; the scale of the peduncle narrow, its superior margin rounded and fringed with a few stiff hairs.

Hab.—Hiogo.

This species resembles dark examples of *Camponotus lateralis* of Europe, but is distinct; its thorax is evenly obliquely inclined to the margin of the metathorax, not elevated and abruptly truncate, as in *C. lateralis*; the description is that of a worker minor.

Genus LASIUS, Fabr.

1. *Lasius fuliginosus*, Mayr, Europ. Formicid. 49.
Formica fuliginosa, Latr. Hist. Nat. Fourm. 140;
 St. Farg. Hym. i. 200; Nyl.
 Mon. Form. Bor. 915; Foerst.
 Hym. Stud. Form. 28; Smith,
 Brit. Form. 105; Mayr, Form.
 Austr. 79.

Hab.—Europe; Japan.

2. *Lasius niger*, Fabr. Syst. Piez. 415; Mayr, Europ. Formicid. 49.
Formica nigra, Linn. Faun. Suec. No. 1723; Fabr.
 Ent. Syst. ii. 352; Latr. Hist. Nat.
 Fourm. 156; St. Farg. Hym. i.
 206; Nyland. Mon. Form. Bor.
 920; Schenck, Beschr. Nass.
 Ameis. 49; Smith, Brit. Form.
 109.
Formica fusca, Foerst. Hym. Stud. Form. 33.

Genus POLYRHACHIS, Smith.

1. *Polyrhachis lamellidens*, Mayr, MS.?

Worker.—Length $3\frac{1}{2}$ lines. Head and abdomen black, smooth and shining; thorax opaque, ferruginous. Head:

the clypeus with a sharp central longitudinal carina; the mandibles aciculate and punctured. Thorax: armed anteriorly with two stout divergent spines; the mesothorax has on each side a short stout spine, which curves outwardly and inclines backwards; the metathorax with two short, stout, blunt spines. Abdomen: the peduncle terminates above in two divergent, acute, curved spines, which are inclined over the base of the abdomen, which is highly polished and shining.

Hab.—Hiogo.

This species is most closely allied to *P. bellicosus*; in the British Museum are specimens of the species from Hong Kong.

Genus TAPINOMA, Foerst.

1. *Tapinoma flavipes*. ✓

Female.—Length 2 lines. Fuscous, opaque, sericeous. Antennæ bright yellow, 12-jointed; ocelli placed backward on the vertex, the posterior pair situated at its posterior margin. Thorax short and ovate; wings subhyaline, with a fulvous tinge; with one large marginal cell and one submarginal, the discoidal cells obsolete; legs of a bright golden-yellow. Abdomen oblong-ovate; petiole small and inclined forwards.

Worker.—Length 1 line. Yellow and shining; the head and posterior half of the abdomen somewhat fuscous; the scale of the abdomen inclined forwards.

Hab.—Hiogo.

Fam. PONERIDÆ.

Genus PONERA, Latr. ✓

1. *Ponera solitaria*.

Worker.—Length 2 lines. Black, slightly shining, and having a thin grey pile; the apex of the scape, the flagellum, and the legs ferruginous; the mandibles ferruginous, and denticulate on the inner margin; the metathorax compressed, subcarinate longitudinally above, and obliquely truncate behind; the node of the peduncle incrassate, its superior margin rounded; the apical segments of the abdomen pale rufo-testaceous.

Hab.—Hiogo.

Fam. MYRMICIDÆ.

Genus APHÆNOGASTER, Mayr. ✓

1. *Aphænogaster aciculata*.

Female.—Length 5 lines. Shining jet-black. Head: the mandibles aciculate and somewhat obscurely ferruginous; the extreme apex of the scape and also of the flagellum rufo-piceous; the head aciculate. Thorax: above longitudinally aciculate and having a few scattered punctures; scutellum rounded behind and having a central longitudinal impressed line, the metathorax deeply excavated in the middle, the excavation transversely aciculate; the four apical joints of the tarsi rufo-testaceous. Abdomen: the two nodes of the peduncle rugulose; the segments smooth and shining, and with scattered pale setæ.

Worker.—Length $2\frac{1}{2}$ lines. Jet-black, the head and thorax aciculate, the abdomen smooth and shining, and with scattered pale setæ. The extreme apex of the antennæ, the tips of the femora and of the tibiæ, and the apical joints of the tarsi, rufo-testaceous; the nodes of the abdomen rugose.

Hab.—Hiogo.

Genus ISCHNOMYRMEX, Mayr.

1. *Ischnomyrmex famelicus*.

Worker.—Length 3 lines. Black, nigro-piceous or rufo-piceous, very variable in colour; large workers usually black, with more or less ferruginous-coloured legs; small workers rufo-piceous, with intermediate shades in different examples. Head oblong, eyes lateral, small and prominent, situated about the middle of the length of the head; antennæ nearly as long as the body; mandibles trigonate, prominent and dentate. Thorax: the prothorax produced into a short neck; the metathorax bidentate; above with a longitudinal channel; legs elongate, the intermediate and posterior tibiæ with very short fine spines at their apex. Abdomen: the petiole of the first node long; the node, viewed laterally, of a blunt wedge-shape; the second node subglobose; abdomen smooth, shining and ovate, usually palest at the apex.

Hab.—Hiogo.

Genus LEPTOTHORAX, Mayr.

1. *Leptothorax congruus*.

Worker.—Length $1\frac{1}{4}$ line. Black-brown; head oblong, eyes about the middle, lateral; the base of the scape of the antennæ and the flagellum rufo-testaceous; the three-jointed club dark fuscous; the head longitudinally finely striated. Thorax finely rugulose; the base of the femora and of the tibiæ, and also the tarsi, pale rufo-testaceous; the thorax is narrowed posteriorly, where it is armed with two short spines. Abdomen smooth and shining, truncate at the base.

Hab.—Hiogo.

This insect is like *L. acervorum*, but smaller.

Genus MONOMORIUM, Mayr.

1. *Monomorium intrudens*.

Worker.—Length 1 line. Head yellowish-chestnut, very smooth and shining; eyes minute, placed at the sides of head anteriorly; the club of the antennæ three-jointed and rather darker than the head. The thorax, legs and nodes of the peduncle pale yellow. The extreme base of the abdomen pale, the rest of it nearly black.

Hab.—Hiogo.

This minute ant is probably, like two or three of the species of the genus, found in houses; the common house ant found in many London houses belongs to the same genus. The species are remarkable for not having any suture between the pro- and meso-thorax, and the meta-thorax is not spined.

Genus PHEIDOLE, Westw.

1. *Pheidole fervida*.

Female.—Length $3\frac{1}{4}$ lines. Pale chestnut-colour, the mandibles of a brownish-black, punctured, very stout and with two teeth at their apex; head about the same width as the thorax; longitudinally striated and slightly emarginate behind. Thorax ovate, rather longer than broad, shining and flattened above; the scutellum smooth and shining; legs paler than the body. Abdomen ovate, smooth and shining, the apical margins of the segments pale.

Worker.—Length $1\frac{1}{2}$ lines. Head of a deeper colour than the female, and four times the width of the prothorax; deeply incised behind; longitudinally striated, the striæ becoming obsolete at the margin of the vertex. The thorax widened anteriorly and angulated at the sides; much narrowed posteriorly; the metathorax with two short, erect, acute spines; the legs and abdomen testaceous.

Hab.—Hiogo.

2. *Pheidole nodus*.

Worker.—Length $2\frac{1}{2}$ lines. Obscurely ferruginous; the head anteriorly, the thorax, and the base of the abdomen, brightest. Head longitudinally striated; deeply emarginate behind, where it is deeply and coarsely punctured. The thorax rugose above; the metathorax with two short, acute spines. Abdomen: the first node of the peduncle narrow, its superior margin rounded; the second large, transverse, four times the width of the first, angular at the sides, above having a few transverse striæ. The head twice the width of the abdomen.

Hab.—Hiogo.

Of the same size as, and resembling the *P. bicarinatus* of Mayr, from Calcutta, but distinguished by the enlarged second node of the abdomen.

Genus CREMATOGASTER, Lund.

1. *Crematogaster laboriosa*.

Worker.—Length $1\frac{1}{2}$ lin. Nigro-piceous, occasionally rufo-piceous, being more or less obscure, smooth and shining; the head narrowed behind the eyes, slightly so in front of them, the tibiæ and tarsi paler than the femora; the metathorax with two short acute spines; the base of the abdomen usually paler than the apex, which is acute.

Hab.—Hiogo.

Fam. MUTILLIDÆ.

Genus MUTILLA, Linn.

— 1. *Mutilla pungens*.

Female.—Length 4 lines. Head: anterior margin of the thorax narrowly, and the abdomen, black; thorax otherwise red. A pubescent spot in the middle of the basal segment, and a narrow fascia on the apical margin

of the second segment, and the extreme apex, pale golden-yellow; the rest of the pubescence on the abdomen above black; beneath, the margins of the segments are thinly fringed with pale hairs. The thorax oblong, densely covered with strong confluent punctures, slightly narrowed in middle; the tarsi rufo-testaceous; the calcaria at the apex of the tibiæ pale testaceous.

Hab.—Hiogo.

Var. differs in being smaller, in being more finely punctured, and in having the legs red, with tips of the joints blackish. May possibly be a distinct species.

2. *Mutilla insidiator*.

Female.—Length 3 lines. Black, the thorax red; a transverse glittering silvery-white pubescent spot on each side of the second segment, before the middle, and the apical segment covered with similar pubescence. The head strongly and closely punctured. Thorax oblong, the sides nearly parallel, slightly narrowed about the middle, and covered with large deep confluent punctures, the thinly-scattered pubescence on its disk black; legs black, and with thin pale glittering pubescence; the calcaria at the apex of the tibiæ white; the tarsi obscurely rufo-testaceous. Abdomen with rather distant punctures, and covered with short black pubescence; beneath, the pubescence is pale and glittering.

Hab.—Hiogo.

3. *Mutilla petulans*.

Male.—Length 5 lines. Head and thorax black, basal half of the abdomen red. Head and thorax strongly and closely punctured; the metathorax with large coarse punctures; the tegulæ and a small space on the scutellum smooth and shining; the thinly-scattered pubescence on the thorax and head silvery-white, except a little on the vertex of the latter, which is black; wings slightly fuscous, darkest towards their apex. Abdomen: the first and second segment ferruginous, the others black; the first segment strongly punctured, the second more finely and more distantly so; the other segments finely punctured; the apical margins of the third and fourth segments with narrow silvery-white fasciæ; the pubescence on the other segments black.

Hab.—Hiogo.

LIST OF SPECIES.

Fam. TENTHREDINIDÆ.

Hylotoma nigritarsis.
imperator.
humeralis.
ephippiata.
simillima.
similis.
pagana, Panz.
trinotata.
captiva.

Selandria nigriceps.
Strongylogaster iridipennis.
Pachyprotasis erraticus.

Macrophya nigropicta.

vexator.
apicalis.
pacifica.
ferox.
ignava.
irritans.
carbonaria.
timida.
luctifera.
flavipes.

Tenthredo erratica.
providens.
scalaris.
hilaris.
volatilis.

Dolerus ephippiatus.
fuscipennis.
subfasciatus.
nigro-cæruleus.

Lyda volatilis.
venustus.
latifrons.

Cephus viator.
agilis.

Sirex japonicus.

Fam. ICHNEUMONIDÆ.

Ichneumon generosus.
cognatorius.
doliturus.
cursorius.
flavitaris.
virulentus.
improvidus.
incanescens.
vexator.
irritator.
rufitarsis.
dentatus.
intrudens.

Cryptus ambulator.

Fam. ICHNEUMONIDÆ—*contd.*

Cryptus carbonarius.
basalis.
penetrator.
punctator.
maculipes.

Trogus arrogans.
Pimpla destructor.
luctuosa.

Thyreodon purpurascens.
Anomalon flavifrons.
insidiator.

Paniscus unicolor.
Ophion pungens.
flavopictus.
unicolor.

Xylonomus investigator.

Fam. BRACONIDÆ.

Agathis atricornis.

Fam. CHRYSIDIDÆ.

Stilbum amethystina.
Chrysis Daphne.

Fam. CHALCIDIDÆ.

Chalcis obscurata.
Epitranus albipennis.
Halticella apicalis.
Eurytoma antica.

Fam. PROCTOTRUPIDÆ.

Epyris apicalis.

Fam. FORMICIDÆ.

Camponotus ligniperdus, Mayr. —
japonicus, Mayr.
vitiosus.

Lasius fuliginosus, Mayr.
niger, Fabr. —

Polyrachis lamellidens, Mayr. —
Tapinoma flavipes.

Fam. PONERIDÆ.

Ponera solitaria.

Fam. MYRMICIDÆ.

Aphænogaster aciculata.
Isechnomyrmex famelicus.
Leptothorax congruus.
Monomorium intrudens.
Pheidole fervida.
nodus.

Crematogaster laboriosa.

Fam. MUTILLIDÆ.

Mutilla pungens. —
insidiator.
petulans.

1876

XVII. *Descriptions of new species of Lucanidæ.* By
 MONS. HENRI DEYROLLE. Communicated by
 Major F. J. SIDNEY PARRY, F.L.S.

[Read 1st June, 1874.]

Ægus grandis, H. Deyr. (*var. med.*). (Pl. V. fig. 6.)

ELLIPTIC, broad, flat, deep shining black, the whole of the upper surface punctured, elytra deeply striate.

Mandibles narrow, slightly curved, very finely rugose, slightly depressed, each armed internally at the base with a rather long horizontal tooth on a level below that of the surface of the mandible.

Head nearly twice as wide as long; sides sub-parallel posteriorly, slightly sinuate in front of the eyes, and somewhat oblique in the remaining anterior portion; clypeus scarcely prominent, rather broad, strongly and somewhat semi-circularly emarginate, so as to leave only the two angular teeth; finely rugulose in front, covered with irregularly impressed points, these points stronger and thicker in the post-ocular region, nearly smooth behind towards the occiput.

Prothorax transverse, slightly narrowed in front, sides rounded in their anterior two-thirds, obliquely truncate posteriorly; anterior angles prominent and rounded; anterior margin widely lobed in the centre, posterior margin strongly bi-sinuate; covered with a strong close punctation on the margins, finer and sparser on the disc, with an irregular narrow smooth central space limited by punctures similar to those of the margins.

Scutellum with a few punctures on the margins.

Elytra oval, margined, angular at the shoulders, each with eight deep punctured striae, of which the external one is obsolete and only indicated by punctures, interstices slightly convex, covered with a strong and close punctation, not however sufficiently strong to render the surface opaque; punctuation of the margins deeper and denser.

Beneath strongly punctured at the sides and base of

the abdomen; head, breast and greater part of the abdomen nearly smooth.

L. 13·5 millim. W. 4·2 millim.

The *var. max.* will probably present considerable modifications of the mandibles, perhaps also a much sparser punctuation of the elytra.

Hab.—Timor, Malacca, Cambodia. Colls. de Mniszech and Parry.

Cardanus lævigatus, H. Deyr.

Black, shining, narrow and parallel; elytra with six punctured striæ on the middle of each, of these the inner and outer are obsolete, and in addition there is a very deeply impressed sutural and marginal stria.

Of the size and form of *C. cribratus*; head nearly semi-circular, slightly truncate in front, depressed above, covered with large umbilicate punctures which are obsolete in the middle; eyes surmounted by an oblique ridge; mandibles rather wide at the base, with a ridge extending thence nearly to the apex.

Prothorax slightly rounded at the sides; angles rounded, the anterior somewhat prominent; traversed by a longitudinal depression commencing at a short distance from the base and terminating anteriorly in a small tubercle, the bottom of this depression covered with sub-confluent punctures; at the sides of the disc an oblique series of irregular punctures arising at the anterior angles, these punctures are coarser towards the posterior third.

Elytra parallel, angular at the shoulders, the striæ obsolete on the terminal callus, the space between which and the margin is opaque, with a few punctures.

Beneath shining, strongly punctate, the middle of the body, the margins of the abdominal segments, the femora and the tibiæ smooth.

L. 9 millim. W. 2·5 millim.

Hab.—Philippines and Moluccas (Lorquin). Coll. de Mniszech.

Figulus ater, H. Deyr.

Deep shining black; rather short and parallel; clypeus deeply emarginate; ocular canthi sub-parallel, emarginate in front of the eyes; prothorax with a punctate longitudinal depression occupying a little more than a third of its median length; elytra deeply striate-punctate.

Allied to *F. laticollis*, Esch. ; differs from it in having the clypeus shorter and more evidently emarginate, by the emarginate ocular canthi, by the well-marked prothoracic foveæ, and finally by having the striæ much deeper.

L. 14 millim. W. 4.2 millim.

Hab.—Mysol. Colls. de Mniszech and Parry.

Figulus punctato-striatus, H. Deyr.

Black, rather short, clypeus scarcely apparent, entire ; prothorax coarsely punctured at the sides, finely on the disc, with a punctured central fovea extended anteriorly and posteriorly by a few large punctures ; elytra dentate at the shoulders, traversed by wide deep striæ furnished with large punctures, interstices convex.

A variety from Malacca is a trifle smaller, the prothoracic fovea is less marked and might rather be styled a longitudinal depression, the ocular canthi are a little less sinuate in front ; some immature specimens are red-brown.

Allied to *F. ater*, but wider in proportion, easily distinguished by the width and coarser punctuation of the elytral striæ, by the more conspicuously dentate shoulders, by the visible punctuation of the entire surface of the prothorax, and lastly by the different form of the clypeus.

L. 13.5 millim. W. 4.2 millim.

Hab.—Timor, Malacca. Colls. de Mniszech and Parry.

Figulus rugosus, H. Deyr.

Blackish-brown ; short, wide, strongly punctate.

Head transverse-quadrate, rounded at the angles, and, as it were, truncate in front ; clypeus conspicuous, narrow, sub-truncate in front ; rather strongly punctate in the middle and behind ; with four distinct tubercles and one somewhat obsolete in the centre in front.

Prothorax transverse, with the posterior angles broadly rounded, covered at the sides with a coarse punctuation extending on the disc very nearly to a long central depression furnished with large scattered punctures, and nearly reaching the little tubercle on the anterior margin and the posterior margin.

Elytra short, angular at the shoulders, deeply striate-punctate, interstices very prominent and convex, terminal space very rugose.

Beneath deeply and thickly punctate.

This species is the shortest of the whole genus.

L. 10·5 millim. W. 4 millim.

Hab.—Borneo. Coll. de Mniszech.

Figulus Cambodiensis, H. Deyr.

Allied to *F. scaritiformis*; differs from it in having the ocular canthi sub-angular in front and almost straight at the sides; in the punctuation of the central depression being coarser and occupying a greater width; and finally by the entire absence of the opaque space at the extremity of the elytra, which are polished throughout.

L. 10 millim. W. 3 millim.

Hab.—Cambodia. Colls. de Mniszech and Parry.

Figulus mediocris, H. Deyr.

Deep chestnut, approaching black; head rugose, with five tubercles, three anterior in a transverse line and two behind them.

Allied to *F. lilliputanus*, Westw., of the same form; punctuation of the head coarser, ocular tubercles less cariniform; punctuation of the prothorax coarser and extending farther on the disc; central depression wider, more parallel, more punctured; striæ of elytra much deeper and more punctured, the interstices not flattened posteriorly; quite at the extremity is a large opaque punctate space, not present in *F. lilliputanus*.

L. 8 millim. W. 2·5 millim.

Hab.—Borneo, Malacca. Colls. de Mniszech and Parry.

Figulus minutus, H. Deyr.

Black, narrow, parallel; elytra strongly punctate-striate, interstices not flattened; head rugose sub-trituberculate above.

Allied to *F. fissicollis*, Fairm., a trifle wider; prothorax not so long; head conspicuously more thickly punctate, with a well-developed tubercle right in front, and with two larger but less prominent tubercles behind.

Prothorax destitute of tubercle on its anterior margin, the central impressed line not so deep as in *F. fissicollis*.

Elytra as in *F. fissicollis*; their striæ, however, a trifle narrower anteriorly, and their punctuation a little closer.

Legs very dark chestnut, almost black.

It differs likewise from *F. modestus* in the tuberculation and punctuation of the head, in the ocular cantli being more oblique, and in the absence of a tubercle in front of the prothorax.

L. 7 millim. W. 2·25 millim.

Hab.—Banda. Coll. de Mniszech.

XVIII. *Some Additions to the Coleopterous Fauna of Japan.* By D. SHARP.

[Read 6th July, 1874.]

SINCE my former papers on the Water-beetles and Staphylinidæ of Japan were presented to the Society, I have received some additional specimens from Mr. Lewis as well as from other sources, and am enabled to add the following species to the list of Japanese insects:—

Eunectes sticticus, Linn. This widely-distributed insect has been found in Japan by Mr. Lewis.

Dytiscus marginalis, Linn. I have a single male individual of this species labelled as coming from Japan; though it differs in one or two respects very slightly from European specimens, I do not think it can be considered a distinct species.

Gyrinus curtus, Mots. I have now obtained more individuals of the small species of *Gyrinus* alluded to in my former paper. Motschoulsky's short description of *G. curtus* does not permit me to decide with certainty whether these specimens belong to the species he intended under that name; but as it appears to me very probable that they do, I will merely reproduce here his description; noting that the inflexed margin of the elytra is reddish, and that the width is about $1\frac{1}{4}$ — $1\frac{1}{3}$ lin. in my specimens.

Gyrinus curtus, Mots. Bull. Mosc. 1866, i. p. 165.

“Statura *G. natatori*, sed brevior, ovatus, nitidus, supra plumbeo-niger, sutura ænea, subtus niger, elytrorum margine subtus anoque brunneis, pedibus testaceis; elytris æqualiter punctato-striatis, interstitiis planis, apice lato arquatim truncato. Long. $2\frac{1}{4}$ lin.; lat. $1\frac{1}{2}$ lin.”

Cercyon quisquilius, Linn. A single specimen of this species has been recently received by Mr. Lewis from Kawatchi, Japan.

Cercyon ustus, n. sp. Ovalis, nitidus, fuscus, limbo dilutiore; antennis, palpis pedibusque testaceis; crebre punctatus, elytris evidenter punctato-striatis. Long. $2\frac{1}{2}$ mm.

This species is closely allied to our *Cercyon aquaticum* and *Cercyon laterale*, but is smaller than either of these, and also has the palpi shorter than they are in those species; the pale legs and palpi also readily distinguish it from *C. aquaticum*, and the more rounded hind angles of the thorax, as also the striæ of the elytra (which are not deeper behind), from *C. laterale*. The head is black, and its punctuation is distinct and moderately close. The thorax is pitchy, with the sides yellowish, and distinctly rounded near the hind angles; its punctuation similar to that of the head. The elytra vary in colour, being generally of a testaceous colour, much infuscated; the amount of the infuscation varying considerably; they are distinctly and moderately closely punctured, and each has also nine rows of fine punctures; the sutural one becomes towards the extremity an impressed stria, but the other rows do not. The legs are entirely yellow.

Cercyon olibrus, n. sp. Brevis, rotundatus, castaneus, nitidus; elytris evidenter striatis, striis quatuor internis postice profundioribus, interstitiis obsolete punctatis. Long. circiter 2 mm.

About the size of *Megasternum boletophagum*, but less convex than that species. Antennæ and palpi yellow; the apical joints of the latter very slender. Head moderately closely and distinctly punctured. Thorax rather finely and only moderately closely punctured. The striæ on the elytra are at the basal portion formed by rows of fine distinct punctures; but the internal striæ become deep towards the extremity, so that the punctures there disappear; the external striæ, on the other hand, are formed entirely by rows of punctures, which are obsolete towards the base, but distinct near the extremity; the punctuation of the interstices is obsolete. The legs are yellow. The under-surface does not differ from the ordinary European species of *Cercyon*.

Cercyon sorex, n. sp. Angustus, ovalis, castaneus, capite obscuriore; prothorace subtiliter punctato, elytris

evidenter striatis, striis punctatis, interstitiis (vix punctatis) postice convexis. Long. $1\frac{1}{2}$ mm.

About the size of *C. pygmaeum*, but narrower and less convex than that species, and remarkable from the very distinct striae of the elytra. The legs, antennae and palpi yellowish. The head and thorax are finely and not densely punctured; the base of the latter is also furnished with a row of closely-placed, fine but distinct punctures. On the under-surface the centre of the metasternum is raised as a large, flat, almost pentagonal surface, finely and sparingly punctured and shining; the mesosternal plate is broad and very strongly punctured. The anterior tibiae are without any notch on the outer edge.

Of this very distinct species I have seen only two individuals, one of which I have had the misfortune to lose at the moment of completing my description. The structure of its meso- and meta-sternal plates will perhaps cause the species to be ultimately separated from *Cereyon* as a distinct genus.

Cyclonotum simplex, n. sp. Rotundato-ovale, nigrum, nitidum, crebre punctatum, antennarum basi, palpisque testaceis; tarsorum posteriorum articulo primo, 2^o duplo longiore. Long. 5 mm.; lat. $3\frac{1}{3}$ mm.

This species very greatly resembles *C. hispanicum*, Küster, and is about the size of that species, but is narrower in proportion to its length; it has the scutellum much narrower than in *C. hispanicum*, the tibiae rather more slender, and the basal joint of the four hinder tarsi longer; the punctuation of the elytra is scarcely so coarse towards the extremity. In all other respects, so far as I can see, it agrees with *C. hispanicum*.

I have this species from China as well as Japan.

Cyclonotum breve, n. sp. Subhaemisphericum, nitidum, nigrum, crebre punctatum, antennarum basi palpisque testaceis, pedibus piceis. Long. $3\frac{2}{3}$ —4 mm.; lat. $2\frac{1}{2}$ mm.

This species is closely allied to *C. orbiculare*, but is less oblong and more hemispheric in form, and has the palpi yellow; the punctuation of the elytra is a little coarser; the hind tarsi are nearly similar in length in the two species, but are just a trifle longer in *C. breve*. From *C. simplex* the smaller size, more hemispheric form,

coarser punctuation and shorter hind tarsi readily distinguish it.

Cryptopleurum atomarium, Fab. var.? A single specimen of a *Cryptopleurum*, sent to me by Mr. Lewis, appears to differ from our European *C. atomarium* by the finer sculpture and more distinct pubescence of its upper surface. Whether it be a distinct species or not I cannot yet decide. A specimen of *C. atomarium* from Amurland, in my collection, does not appear to differ from our Scotch specimens.

Megasternum gibbulum, Mots. A number of specimens of a small *Megasternum* appear on their upper surface to differ from *M. boletophagum* only by their more coarsely and closely punctured head and thorax. Motschoulsky's short diagnosis of *M. gibbulum* from Japan indicates that species as differing from *M. boletophagum* only by its broader form. Though the specimens before me do not seem to me to be broader than ordinary specimens of *M. boletophagum*, there can be little doubt, I should think, that they must belong to the species intended by Motschoulsky, as it is not at all probable that there should exist in Japan two species so closely allied to *M. boletophagum*. The species from Japan, though so closely resembling the European *M. boletophagum*, is certainly distinct therefrom, for whereas in *M. boletophagum* the first abdominal segment is closely and distinctly punctured, and the others are shining and impunctate, in the Japan species, on the other hand, all the segments are very distinctly punctured. The prosternal plate also differs much in the two species; in *M. boletophagum* its centre is elevated, whereas it is not so in the species from Japan.

TRYGÆUS, nov. gen. (*Staphylinidæ*.)

Corpus latum, transversim convexum.

Antennæ apicem versus leviter incrassatæ.

Labrum corneum, transversum, medio emarginatum, utrinque membranâ prominente barbatâ munitum.

Labium mento corneo, brevi, transverso, margine anteriore medio recto, versus latera leviter oblique truncato. Ligula medio incisa, brevi, transversa, dense barbata. Palpi labiales breves, articulo 2° primo duplo brevior, 3° primo æquali.

Mandibulæ robustæ, acutæ, apice incurvæ.

Maxillæ malâ superiore dense barbatâ, inferiore membranaceâ, apice barbatâ. Palpi maxillares filiformes, sat elongati, articulo 2° primo paulo brevior, 3° primo paulo longior.

Coxæ anticæ elongatæ, transversæ, sed vix prominentes.

Stigmata prothoracica occulta, prothoracis parte cornea posteriore ab anteriore bene separata; acetabulis intermediis profundis.

Elytra elongata, metanoto multo longiora.

Abdomen conicum, segmentis tribus dorsalibus perspicuis.

Tibiæ longitudinaliter carinatæ, breviter spinulosæ.

Tarsi quinque-articulati.

This very remarkable insect should be placed in the *Piestini* near *Trigonurus*. The anterior coxæ are about as prominent as in *T. Mellyi*, but the posterior side piece of the thorax is well separated from the anterior portion, leaving the coxæ visible in the intervening space; the structure of the tibiæ distinguishes it unmistakably from *Trigonurus*.

The mentum appears to have the anterior portion membranaceous and retractile; when it is extended the anterior margin then appears prominent in the middle, much as in *Trigonurus*. The insertion of the antennæ is just as in *Trigonurus*.

Reiche in the "Annales de la Soc. Ent. France, 1865," p. 642, has established a distinct group for the genus *Trigonurus*, affirming that it is distinguished from the *Piestides* by its labrum not being furnished with lateral appendages; but I find, on mounting the labrum of *T. Mellyi* in Canada balsam, that these appendages are very distinctly present, though unusually delicately formed: and I see no sufficient reason why *Trigonurus*, as well as *Trygæus*, should not form part of the group *Piestides* as at present understood; though it must be admitted that the elongate elytra and pointed hind body are exceptional characters for the group.

Trygæus princeps, n. spec. Convexus, nitidus, nigricans, antennarum basi tarsisque obscure rufescentibus; prothorace grosse punctato; elytris profunde striato-punctatis. Long. 7 mm.; lat. $3\frac{1}{2}$ mm.

Antennæ distinctly thickened towards the extremity, the five basal joints reddish and glabrous (the others pubescent); first joint rather long and stout, 2nd joint short, 3rd long and slender, twice as long as the 2nd, joints 6—10 black, the first of them longer than broad, the 2nd scarcely so long as broad; 11th joint short, pointed, reddish. Palpi and horny parts of the mouth reddish, the soft parts exerted and visibly densely pubescent. Head distinctly but irregularly punctured, the margin over the insertion of the antennæ distinctly raised, and on the inner side of this the surface is broadly depressed. Thorax nearly twice as broad as it is long, the sides rounded and narrowed towards the front; the base is excavate on each side, so that the hinder angles are almost acute, and besides this it is also a little emarginate in front of the scutellum; it is densely covered with coarse punctures, but at the base the punctures are almost wanting in the middle, and at the hind angles. Scutellum large and very smooth and shining. Elytra nearly twice as long as the thorax is in the middle, convex both transversely and longitudinally, each has eight deep broad striae, these being coarsely punctured, the interstices quite impunctate, the extremity is rounded; the three exposed segments of the hind body are of a pitchy colour, and distinctly punctured. The legs are pitchy, the tarsi reddish, these about half as long as the tibiæ. This species occurs sparingly in damp places, in the wood around Maiyasan Temple, Hiogo. In spring, beneath fallen and decaying leaves, and later on, in the summer, it may be beaten off the lower foliage of various shrubs.

LIST OF SPECIES.

DYTISCIDÆ.

- Ennectes sticticus*, Linn.
Dytiscus marginalis, Linn.

GYRINIDÆ.

- Gyrinus curtus*, Mots.

HYDROPHILIDÆ.

- Cercyon quisquilius*, Linn.
ustus, n. sp.

HYDROPHILIDÆ—*continued.*

- Cercyon olibrus*, n. sp.
sorex, n. sp.
Cyclonotum simplex, n. sp.
breve, n. sp.
Cryptopleurum atomarium, Fab.
Megasternum gibbulum, Mots.
 STAPHYLINIDÆ.
Trygæus princeps, n. sp.

XIX. *Descriptions of some new species and a new genus of Diurnal Lepidoptera, in the collection of HERBERT DRUCE, Esq. By A. G. BUTLER, F.L.S., F.Z.S., &c.*

[Read 1st June, 1874.]

Fam. NYMPHALIDÆ.

Subfam. DANAINÆ.

Genus EUPLÆA, Fabricius.

Euplæa magnifica, n. sp.

♀? Wings above bright sepia brown; primaries shot with vivid blue; subapical area densely irrorated with lilacine; a conspicuous subcostal white spot; a second within discoidal cell, and a third on second median interspace, forming together a triangle; a minute whitish point on lower discoidal interspace, and another on first median interspace; secondaries with a double series of ill-defined, disco-submarginal, pale-ochraceous spots from third median branch to anal angle: body black, white-spotted in front: wings below rich chocolate-brown; primaries with three white spots as above, a fourth oval spot on first median interspace; a small point between lower discoidal and third median nervures, a subapical point, one submarginal on second median interspace, five nearly marginal points from third median branch to external angle, and some anal-marginal dots on the fringe, whitish; secondaries with a spot near end of cell, and five unequal spots in a semicircle round extremity of cell, pearly-white; a double submarginal series of yellowish-white spots; fringe dotted with whitish: body black; thorax white-spotted: expanse of wings 4 inches.

Hab.—Thibet. One specimen.

Subfam. SATYRINÆ.

Genus EUPTYCHIA, Hübner.

1. *Euptychia peculiaris*, n. sp.

♂ Wings above brown; a paler line close to margin; margin black-brown; secondaries with a zigzag submarginal line; body blackish; wings below paler; a zigzag submarginal line; a line close to margin, and the margin itself, black-brown; two irregular dark-brown central lines; the disc greyish, with a central nebulous pale-brown band; secondaries with two conspicuous, black, obliquely placed, subapical ocelli, white-pupilled with ochraceous irides; outer central line forming an angle at third median branch; body greyish: expanse of wings 2 inches, 1 line.

Hab.—Minas Geraes.

This species may at once be recognized by the two isolated ocelli, near apex of secondaries on under surface.

2. *Euptychia stelligera*, n. sp.

♂ Wings above dark brown; body blackish: wings below dark brown, with two central, nearly parallel, irregular, blackish lines; a zigzag submarginal black-brown line, with paler external edge; outer margin black; fringe greyish-brown; a discal series of whitish-ochraceous dots, those on secondaries larger than on primaries, one near costa of secondaries largest; secondaries indistinctly irrorated with pale-brown scales; an indistinct dark-brown line close to margin: body dark brown: expanse 2 inches, 3 lines.

Hab.—Minas Geraes.

Closely allied to *E. Quantius*.

3. *Euptychia Angelica*, n. sp.

♂ Wings above azure-blue, form of *E. Junia*; primaries with apex, apical costa, outer margin and apical nervures blackish-grey; a shining (rubbed in appearance) brown streak from base to apex, running along the median nervure and then widening; inner margin very convex; secondaries with costal area to discoidal nervure blackish, with vivid, dark, metallic-green reflection; apical margin and a fine submarginal line blackish: body greyish-brown, centre of thorax blue; wings below azure-blue; markings very similar to those of *E. Doris*; two central dark brown

bars; a discal streak, a discal submarginal line, a waved line close to margin, and the margin itself, dark brown; primaries with central bands, discal streak, and submarginal line only extending half across the wing; a well-marked subapical ocellus of the normal type; internal area greyish; secondaries with two subapical and two subanal, unequal ocelli: body dirty whitish: expanse 1 inch, 11 lines.

Hab.—Rio.

Allied to *E. Doris*, but size and shape of *E. Junia*.

Subfam. ELYMNIINÆ.

Genus DYCTIS, Boisduval.

Dyctis astrifera, n. sp.

♀ Wings above rich pitchy-brown; external area smoky-brown; primaries with a diffused, curved, discal, castaneous streak, from costa to inner margin; secondaries with discal area ochraceous-brown; a white spot on second median interspace; body blackish: wings below rich red-brown; external area blackish; primaries with basi-costal area blackish; external angle paler than the ground colour; an oblique discal series of five conspicuous white dots from below subcostal nervure to below second median branch; secondaries with discal area paler; six conspicuous white discal spots, forming a semicircle from first subcostal branch to interno-median interspace; external area speckled with white dots and lituræ; body dark brown; proboscis ochreous: expanse of wings 2 inches, 10 lines.

Hab.—Batchian.

Not nearly allied to any known species: form of *D. Valeria*.

Subfam. BRASSOLINÆ.

Genus OPSIPHANES, Westwood.

Opsiphanes luteipennis, n. sp.

Allied to *O. Batea*, altogether paler on both surfaces; dark external area above only occupying one-third of the wings, edged internally with fulvous, and deeply sinuated; a row of large submarginal white spots on secondaries, but only three on primaries; wings below with the discoidal markings in primaries less irregular; brown discal band narrower; ocellus smaller; secondaries less hatched with

brown; whitish bands better defined; marginal brownish border narrower: expanse 3 inches, 4 lines.

Hab. — ?

Subfam. NYMPHALINÆ.

Genus PANOPEA, Hübner.

Panopea Drucei, n. sp. (Pl. VI. fig. 3.)

Primaries above black; a subcostal spot at end of basal third of cell, an oblique quadrifid band cut by the median nervure and its two first branches, an oblique subapical band, composed of a subcostal dot and three large spots, a waved submarginal series of seven spots (smallest at the centre of the series), and some geminate dots near centre of outer margin, pearly-white; fringe white-spotted; secondaries whitish-buff, becoming white at basi-costal area; base, costa, and a broad marginal border, black-brown, changing to pale brown towards anal angle; nervures and internervular folds black; a submarginal series of six large white spots; a double, interrupted, marginal rosy-white line; fringe white-varied: body black-brown, head and prothorax black, white-spotted; primaries below with apical costal half olivaceous-brown; all the white markings more conspicuous than above; a white costal spot at base; secondaries with the dark-brown area replaced by pale olive-brown; two continuous marginal white lines; base dark brown, white-spotted; thorax black, white-spotted; abdomen brown, venter whitish: expanse 3 inches, 3 lines.

Hab.—Madagascar.

A very handsome species.

Genus HESTINA, Westwood.

Hestina mimetica, n. sp.

Allied to *H. Nama*; differs in its much smaller size; browner tint; the divergence, towards costa of primaries, of the double discal, from the double submarginal series of spots; the broader division between the discal spots on median interspaces; the regularly-formed angulated submarginal lunules on all the wings; the lilacine tint of internal area of primaries; the uniform red-brown tint of the ground colour on under surface; the black proboscis: expanse 3 inches, 3 lines.

Hab.—Java.

An excellent mimic of *Danais aglaoides* of Felder, from Java.

Genus NEPTIS, Fabricius.

Neptis ferveescens, n. sp.

Wings above black-brown; primaries with a broad expanding streak along median nervure from base to middle of third median branch; two large subapical spots (touching externally), a large spot near external angle, and another on inner margin, fulvous; a bisinuate discal line, a narrower submarginal line, greyish-brown; secondaries with costa pale brown; a broad central transverse fulvous band becoming white on internal area; a pale brown diffused discal line just beyond, followed by a slightly undulated, disco-submarginal, dark-fulvous line; a submarginal pale-brown line: body black-brown: wings below altogether paler; all the fulvous bands and spots replaced by testaceous, varied with pearly whitish; primaries with a testaceous, irregular, subcostal streak from base to beyond middle of wing; inner margin greyish; submarginal lines rosy testaceous, distinct; secondaries with base and a sub-basal band testaceous; discal and submarginal lines of upper surface well defined; thorax and palpi dirty white; abdomen pale brown: expanse 1 inch, 10 lines.

Hab.—Philippines.

Allied to *N. heliodora*.

Subfam. ACREINÆ.

Genus PLANEMA, Doubleday.

1. *Planema arctifascia*, n. sp.

♂ Closely allied to *P. protea*, but differing (in a series of examples) in having the pale-testaceous band of secondaries of only half the usual width, and narrowing from costal to abdominal margin; nervures and base also darker: expanse 2 inches, 5 lines.

Hab.—Angola (*J. J. Monteiro*).

P. Monteironis, Butler, proves, from an examination of Mr. Druce's specimens, to be a good and well-defined species; he has a series of both sexes received from Mr.

Monteiro; the male is very similar to the female, but smaller.

2. *Planema pseudoprotea*, n. sp.

♂ Primaries above dark brown; discoidal area and base reddish; interno-discal area dull fulvous, cut by the internal nervure and first median branch; a subapical pale-testaceous band of the form of that in *P. protea*; secondaries with base brown, spotted with dusky; outer margin broadly brown; nervures of external half blackish; central area testaceous internally, fulvous externally: body, head and thorax black, spotted with white and testaceous; abdomen with basal segments blackish, edged with testaceous and spotted with fulvous; anal segments fulvous, with dorsal dusky patch; wings below with all the dark-brown (excepting a band within the subapical pale band of primaries), replaced by brownish-testaceous; nervures dusky; subapical band of primaries whitish; base of secondaries spotted with black; thorax black, white-spotted; palpi and legs fulvous; abdomen fulvous: expanse 2 inches, 2 lines.

♀ Similar to the male, but larger, the base darker; band pale reddish-tawny; interno-discal area bright reddish-tawny; secondaries with central area rather paler; wings below as in the ♂: expanse 2 inches, 6 lines.

Hab.—Angola (*J. J. Monteiro*).

3. *Planema amphiprotea*, n. sp.

♀ Primaries above dark brown; interno-discal area tawny, broader than in preceding species; a broad subapical white band and a hastate white spot or dash on first median interspace; secondaries tawny, base and apical margin brown, diffused; base spotted with dusky; nervures of outer half blackish: body black; head and thorax white-spotted; abdomen spotted with buff; segments edged with whitish scales: wings below paler than above; all the dark brown (excepting a band within the subapical white band, and the discoidal cell, of primaries), brownish-testaceous, nervures dusky; base of secondaries spotted with black; basal three-fourths of palpi and front pair of legs testaceous; thorax black, white-spotted; abdomen fulvous: expanse 2 inches, 7 lines.

Hab.—Angola (*J. J. Monteiro*).

♀ Var. band of primaries broader; a tawny hastate spot on first median interspace; interno-discal area broader and darker; secondaries with broad, brown outer margin as in preceding species; central area pale internally; its outer three-fourths dark tawny; primaries below with discoidal cell dark brown: expanse 2 inches, 8 lines.

Hab.—Angola (*J. J. Monteiro*).

Fam. ERYCINIDÆ.

Subfam. NEMEOBIINÆ.

Genus MESOSEMIA, Hübner.

1. *Mesosemia atroculis*, n. sp.

♀ Wings above with basal three-fifths greyish-brown; a curved, continuous, tolerably broad, white band, tapering at anal angle of secondaries; external area black-brown; primaries with an irregular, broad, central, dark-brown band, edged externally with testaceous and blackish, and containing two conspicuous ocelloid black spots, one at end of cell, tripupillate, with narrow testaceous iris, the other just below origin of first median nervule minutely unipupillate, with pale-brown iris; secondaries with broad irregular band as in primaries, containing one central, small, unipupillate ocellus: body greyish-brown: wings below irrorated with white; two large conspicuous ocelli in central band of secondaries: body pale greyish-brown: expanse 1 inch, 9 lines.

Hab.—Pebas (*Hauxwell*), Ecuador.

Allied to *M. Sifia* of Boisduval.

2. *Mesosemia trilineata*, n. sp.

♀ Allied to *M. Thymetina*, white band of primaries more oblique and widening from costa to internal margin, edged externally towards external angle with lilacine grey; secondaries with white band slightly broader, more arched, and beyond it a distinct lilacine grey streak: expanse 1 inch, 9 lines.

Hab.—Amazons.

Allied to *M. Thymetina* and *M. Mæana*.

3. *Mesosemia latizonata*, n. sp.

♂ Allied to *M. Machara*, white transverse band of primaries widening from costa to external angle, edged internally with grey; ocellus tripupillated with silver; secondaries with very broad discal white band, tapering to anal angle; outer brown margin narrow, irregular, not reaching apex: expanse 1 inch, 6 lines.

Hab.—Sarayaco, Ecuador.

In some respects allied to *M. Isshia*.

4. *Mesosemia judicialis*, n. sp.

♂ ? Wings above with basal two-fifths brown; discal area crossed by a very broad snow-white band, tapering towards costa of primaries and towards anal angle of secondaries, but not touching either; widest opposite cell of secondaries; external area dark brown; primaries with a large black tripupillated ocellus on apical half of discoidal cell, iris pale brown; a black transverse line across middle and end of cell, bounding ocellus; white band greyish internally; secondaries with white band intersected on its inner edge by three undulated black lines: body brown: wings below with basal area irrorated with whitish; primaries with a series of concentric dark-brown semicircles below ocellus; secondaries with nearly central greyish band, bounded on each side by three irregular dark-brown lines, with paler interspaces, and containing a central, blind, black, white-zoned ocellus; white band containing two nearly central brown spots, and interrupted on internal area by a small brown dot and short streak: body brown: expanse 1 inch, 10 lines.

Hab.—Ucayali, Peruvian Amazons (*Bartlett*).

Allied to *M. Thymetus*.

5. *Mesosemia Hesperina*, n. sp.

♂ Allied to *M. Veneris*, but the black bands of primaries much more angular, incurved towards costa; the band in continuation of the ocellus obsolete; the bands on basal half of secondaries obsolescent; the discal black bar narrower, nearer to margin; the submarginal band reduced to a line and placed close to margin; wings below pale grey-brown, with dark smoky-brown transverse bands; the submarginal line maculate; primaries with a conspicuous uni-

pupillate ocellus at end of cell; secondaries with a small blind ocellus, both with pale stramineous iris: expanse 1 inch, 5 lines.

Hab.—Chontales (*Belt*).

Subfam. EURYGONINÆ.

Genus EURYGONA, Boisduval.

Eurygona fervida, n. sp.

Wings above dark smoky-brown; primaries with a broad oblique tawny patch, dusky at base from base and basal half of inner margin to middle of third median branch; secondaries with costa pale whitey-brown; interno-basal two-thirds of wing reddish; the veins, and a cuneiform patch from apex of third median to middle of second median branch, tawny; thorax smoky-brown, abdomen inclining to tawny; wings below shining whitey-brown, crossed by four continuous distinct reddish-brown lines or streaks; the second at end of basal third, recurving as it reaches the first median branch of secondaries, and thus running to inner margin; the third nebulous, diffused towards the costal margins; the fourth becoming maculate on secondaries, not continued beyond the third median branch; outer margin reddish-brown, becoming golden orange, and denticulate on anal margin of secondaries; secondaries with four black submarginal spots along anal half of outer margin, edged externally with white: body whitey-brown: expanse 1 inch, 7 lines.

Hab.—Maracaibo (*Coll. Kaden*).

Somewhat like *E. Utica* above, more like *E. Mys* below.

Subfam. ERYCININÆ.

Genus PANARA, Westwood.

1. *Panara aureizona*, n. sp.

♀ Wings above jet black; primaries crossed obliquely from costa to external margin by a broad orange band, widest upon costa, suddenly narrower from subcostal nervure, not quite reaching external angle: body black-brown; margins of venter orange: wings below as above: expanse 1 inch, 7 lines.

Hab.—Minas Geraes.

Similar to, but much larger than, *Mescene sagaris* ♀.

2. *Panara artifascia*, n. sp.

♀ Wings above jet black; primaries crossed obliquely from costa almost to outer margin near external angle by a narrow, parallel, pale-orange band, slightly convex externally; wings below as above: body black brown; margins of venter orange: expanse 1 inch, 7 lines.

Hab.—Espirito Santo.

Closely allied to *P. phereclus*, but the band of primaries rather narrower, and the fringe not varied with white above or below.

Genus RUSALKIA, Kirby.

Rusalkia Charon, n. sp.

Wings above jet black; nervures greyish; primaries with an oblique orange streak tapering from close to costa to internervular fold of first median interspace near external angle: body black: wings below slightly less black than above, nervures distinctly grey; secondaries with a crimson subcostal spot close to base; a nebulous grey streak close to outer margin; thorax brown, venter black, with a scarlet line on each side: expanse 1 inch, 9 lines.

Hab.—Rio.

Allied to *R. Marathon*, but at once distinguished from it and *R. Ctesiphon*, by the shorter oblique band of primaries, the smaller red spot near base of secondaries on under surface, and the nebulous submarginal grey streak.

Fam. PAPILIONIDÆ.

Subfam. PIERINÆ.

Genus IXIAS, Hübner.

Ixias familiaris, n. sp.

♀ Nearly allied to *I. evippe*, primaries above without the white patch on internal margin; oblique postmedian band narrower, interrupted in the centre, enclosing a nebulous black spot on second, as well as on first, median interspace; white basal area of secondaries restricted, the base and internal area clouded with grey excepting on basal half of abdominal fold: body greenish-grey: wings below pale ochreous, sulphur yellow at base, hatched with brown; an angular series of five indistinct dusky lunules

beyond cell on disc; a large black spot at end of cell; a streak ending in a black spot on first median interspace, and the interno-discal area smoky-brown; secondaries with a black spot at end of cell; a dusky subcostal spot and several others on disc beyond cell: body sulphur yellow: expanse 2 inches, 11 lines.

Hab.—Thibet.

Genus BELENOIS, Hübner.

Belenois solilucis, n. sp.

♂ Above very like *B. Ianthe*, but the dark-brown border more regular and of only about half the width, below slightly paler yellow than above; margin black spotted on veins; costal edge of primaries black; base broadly orange-tinted; secondaries with basi-costal area orange: body pale yellow: expanse 2 inches, 8 lines.

Hab.—Angola.

At once distinguished from *B. Ianthe* by the simple character of the under surface.

Subfam. PAPILIONINÆ.

Genus PAPILIO, Linnæus.

1. *Papilio incandescens*, n. sp. (Pl. VI. fig. 1.)

♂ Wings above black; fringe white-spotted; primaries with a postmedian oval green patch (cut by the first and second median branches), upon which externally, at its upper extremity, is an oblique pale yellow spot; secondaries crossed by an interrupted scarlet band, changing in some lights to bright pearly lilacine, composed of a broad quadrifid patch cut by the median nervules, and two unequal circular spots, between nervures beyond; abdominal margin clothed with long white hairs; body above black; wings below altogether paler, especially the apical area of primaries; an irregular, partly ill-defined, pale yellow, oblique band crossing the cell at origin of third median branch; secondaries with a curved discal band of six rosy spots, smallest towards costa: body dark brown; thorax spotted with scarlet: expanse 3 inches, 2 lines.

Hab.—Pará (*Beske*).

Allied to *P. Lycimenes*; primaries more like *P. Nephalion*.

2. *Papilio Drucei*, n. sp. (Pl. VI. fig. 2.)

♂ Wings above black, paler towards apex of primaries; fringe white-varied; primaries with a broad dull green discal band from just beyond second median branch to inner margin; secondaries with a large quadrifid subtriangular scarlet patch, cut by the median nervures, in certain lights changing to brilliant pearly lilacine, and surrounded by a vivid blue halo; abdominal fold bearing a long streak of brown hairs: body black, collar spotted with crimson at the sides: wings below paler than above; primaries greyish, excepting interno-basal area, which is blue-black; band of upper surface wanting; secondaries rich brown; disc crossed by six rosy spots, the first a mere dot, the second, third and fourth largest, paler internally, the fifth semicircular, placed obliquely to the others, the sixth small, at anal angle: body black; thorax spotted with scarlet; antepenultimate segment of abdomen with a scarlet fringe: expanse 4 inches.

Hab.—Ecuador.

Most nearly allied to *P. Vertumnus*, noticeably different, from the band of primaries being considerably nearer to outer margin and much longer.

3. *Papilio Metaphaon*, n. sp.

Allied to *P. Phaon*; primaries almost identical; secondaries with a large greenish-grey patch from basal third of cell to centre of disc, arched and dentate, sinuate externally; costa brown; a large suboval spot at apex, six submarginal dots, and the fringes creamy whitish; inner margin and base brown: body brown; head black, streaked with grey; pterygodes black, spotted with greenish-grey; wings below shining brown; primaries with four distinct diffused whitish spots near outer margin from first median interspace to external angle; secondaries with an oval white spot at apex; six submarginal dots and the fringes white, five increasing, irregular, lake-red spots or striae from second subcostal interspace to anal angle; two large basal scarlet spots, one on the costal lobe, the other on interno-median interspace: body brown; thorax and anal segments spotted with scarlet: expanse 3 inches, 10 lines.

Hab.—Mexico (*Coll. Kaden*).

Somewhat like *P. Ulopos* of Gray, but quite distinct.

4. *Papilio polystictus*, n. sp.

♂, ♀ *P. Protadamas*, var. b, G. R. Gray.

Wings above dark brown, primaries slightly and secondaries vividly shot with glittering sap-green; primaries with a straight discal series of increasing, small, diffused, greenish-grey, lunate spots, larger and more distinct in the female; secondaries with a slightly arched discal series of nearly equal oval greenish-grey spots, scarcely visible in the male, but well defined in the female; a disco-submarginal series of greenish-grey angulated striae; fringes white: body above dark brown, dorsal region of the abdomen in male pale yellow; collar spotted with dirty ochraceous; primaries below with basal half black-brown, apical half and outer margin pale brown; four conspicuous, submarginal, pale-yellowish spots near external angle; secondaries shining brown, darker on disc; seven submarginal wavy red streaks, surrounded with blackish, and shot with lilacine: body dark brown; thorax and anal segment spotted with golden yellow; venter spotted with white: expanse ♂ 4 inches, 1 line; ♀ 4 inches.

Hab.—S. Brazil (*Coll. Druce*); Rio Grande and Espírito Santo. B. M.

This species is clearly distinct from *P. Protodamas*.

Fam. HESPERIDÆ.

Genus CARYSTUS, Hübner.

Carystus placens, n. sp.

♂ Primaries above blackish-brown, the base streaked with tawny; seven hyaline spots placed exactly as in *C. Antoninus*; secondaries tawny, the costa and outer margin dark brown; thorax densely covered with greenish-grey scales, abdomen tawny; wings below rich dark brown, the basal half of costal area of primaries and the basal two-fifths of secondaries cream-coloured; primaries with a large grey bifid spot and a minute costal stria at apex; hyaline spots as above; secondaries with intermedian area yellow, gradually deepening in colour from base to anal angle, where it becomes red-brown; palpi and thorax cream colour, venter tawny: expanse 2 inches, 2 lines.

Hab.—Bogota.

Allied to *C. Antoninus* and *C. phænice*.

ANCISTROIDES, n. gen.

Allied to *Astictopterus*, but differing in the much longer and more slender antennæ; also allied to *Carystus* (Sect. *Hesperia* of Swainson), but differing in the form of the wings and the absence of any trace of discocellular veinlets in secondaries. Type *A. longicornis*.

Ancistroides longicornis, n. sp.

Wings above rich brown; secondaries with a large quadrate ochreous patch at anal angle, and occupying more than a third of the wing: body dark brown: wings below paler than above; the patch in secondaries pale buff, extended laterally, and sinuated internally; thorax dark brown, palpi and collar varied with creamy and ochraceous scales; venter of abdomen pale buff: expanse 2 inches 4 lines.

Hab.—Timor (*Wallace*).

At first sight this species reminds one of *Tagiades Pralaya* of Moore.

Genus ANTIGONUS, Hübner.

Antigonus decens, n. sp.

Wings above pale dove-colour, primaries and base of secondaries with a cinereous tint; primaries with costa and apical area brown; a large irregular dark-brown spot (enclosing externally a small hyaline white spot), crossing centre of discoidal cell; an angulated black discal line from costa to internal nervure near external angle; a subcostal hyaline white spot near apex; an indication of a submarginal series of dark brown spots; secondaries crossed near base by an oblique dusky line; a short subcostal line uniting costal and subcostal nervures, and a straight transverse discal line uniting subcostal and internal nervures, black; an indication of a submarginal series of cinereous spots: body above brown, abdomen greyish: wings below much paler than above, secondaries whitish; markings nearly as above, but less strongly defined: body white: expanse 1 inch, 7 lines.

Hab.—Peruvian Amazons (*Bartlett*).

Not allied to any known species.

XX. *Descriptions of new species of Endomycici.*
By Rev. H. S. GORHAM.

[Read 6th July, 1874.]

THE descriptions which I have the honour of laying before the Society to-night of Endomycid Coleoptera are supplementary to my Catalogue—"ENDOMYCICI RECITATI." For though some of them were known to me at the time of its publication, I had not then sufficient information to warrant my describing them. I have been able to add a few new species which have come into my possession from the sources referred to in the descriptions, bringing the number now to be added to fifteen, some being fine species abundantly distinct from any known, while five pertain to the difficult genus *Stenotarsus*, which will soon increase in bulk as tropical collections are searched for species. Of this genus, the species from the three tropical continents,—South America, Africa, Asia—have each a distinctive type; but constant generic characters are wanting by which the genus could as yet be subdivided. On the whole, the African species are the best defined, while the South American are the most uniform. The Asiatic species are generally to be recognized by the punctured striæ of the elytra and frequently variegated colour, while the only one I have seen from the far East, Japan, is rather of the American type.

Group ENDOMYCICI.

Fam. EUMORPHIDÆ.

Genus EUMORPHUS, Weber.

Eumorphus Murrayi, n. sp.

Oblongo-ovatus, niger, nitidus, fere glabratus; clytris subviolaceis, convexis, maculis duabus transversis testaceis; femoribus clavatis, apice dilute castaneis. Long. lin. $4\frac{1}{2}$, ♂ ♀.

Mas tibiis anticis medio dente magno distante, tibiis

omnibus apicem versus interne aureo-pilosis, prothoracis angulis posterioribus acute productis atque deflexis.

Though at first sight resembling *E. pulchripes*, Gerst., this species cannot be confounded with it if the male characters are noticed, as the first pair of tibiæ only are toothed; thus it should come in Sec. C. b. of Gerstaecker's arrangement.

The hinder angles of the thorax in the male are more acute and further produced. The elytra are very convex, the spots narrower, the hind one especially, more transverse; the colour of the legs is different, not being *coralline* as in *pulchripes*, but *castaneous*, and the femora are considerably more clavate than usual in this genus, less of their length, also, being yellow than in *pulchripes*. The hind tibiæ of the male are *tricuspid*, while those of the female are simple. Underneath the last segment of the abdomen in the male is excavated, but not so angularly as in *E. pulchripes*.

Hab.—Philippine Isles. In my own collection from that of Mr. A. Murray; and in the Oxford Museum.

Eumorphus sanguinipes, Hope (ined.?) sp. indescript.

Oblongo-ovatus, niger, nitidus; elytris maculis duabus transversis flavis, femoribus apice corallinis. Long. lin. 5, ♂.

Mas, tibiis anticis medio fortiter dentatis, dente aliquantum distante, infra dentem excisis, tibiis intermediis inermis paululum incurvatis; abdominis segmento ultimo exciso.

Still more nearly resembling *pulchripes*, Gerst., than *Murrayi* does, but, like it, at once distinguished by the male characters, which place it in Section C (b), in which the front tibiæ alone are toothed.

The tooth in this species, while it is stronger than in *pulchripes* and stands out more from the tibia, is yet much smaller than in *Murrayi*. It is as in that species in the middle of the tibia, but the latter is not flattened and sinuous externally as in *Murrayi*, but simple.

The femora are formed and coloured more as in *pulchripes*, but the black extends further from their base.

The middle tibiæ are slightly sinuous and bent inwards at the extremity, but not suddenly crooked as in *pulchripes*.

The last segment of the abdomen is angularly cut out, which (as well as the differently coloured and much less clavate femora) will prevent its being confounded with *Murrayi*. In neither of these two species is there any hairiness on the underside of the two last segments.

Hab.—Java? A single male in my possession from the collection of M. Le Marquis La Ferté Sécetère, labelled *sanguinipes*, Hope.

Genus PEDANUS, Gerstaecker.

Pedanus laevis, n. sp.

Nigro-piceus, subnitidus, fere laevis, thorace transversim quadrato lateribus sinuatis; elytris maculis duabus flavis anteriore nec basin nec marginem attingente. Long. lin. 4, ♂.

Mas, tibiis anticis supra medium dente tenui; intermediis, dente minuto juxta apicem armatis, his apice leviter incurvato.

Rather shining, dark pitchy and without any visible punctures. Head with two shallow impressions between the antennæ, the latter rather long, the third joint longer than the two first taken together; fourth to eighth equal in length, longer than broad; club rather broad, compressed and closely articulated. Thorax with the sides rounded from the apex to near the base, where they are constricted immediately before the hind angles, which are slightly turned out and acute. Disc rather convex and almost smooth, with two small punctiform impressions near the middle; the base finely channelled; basal sulci fine, commencing in small foveæ. Elytra having the humeral callus well pronounced; the pale-yellow spots smaller than in *Gerstaeckeri*, the anterior one equally distant from the base and the suture and not passing the reflexed margin outwards; both spots are a little transverse, apex of the elytra rounded, underside glabrous.

From Mr. Waterhouse's collection. A single specimen, without locality.

Apparently nearest to *P. quadrilunatus*, Gerst.: the impunctate surface of the elytra, which are also pitchy with no trace of a blue tint, as well as the tooth on the front tibiæ, will prevent its being confounded with that species.

NOTE.—*Eumorphus Gerstaeckeri*, Gorham, assigned

with doubt to *Pedanus* (Endom. Rec. p. 37), undoubtedly belongs to that genus.

Genus *ENCYMON*, Gerstaecker.

Encymon regalis, n. sp.

Niger, nitidus, thorace transverso lateribus sinuatis; elytris nigro-subcyaucis, vel subviolaceis, maculis duabus rufis; femoribus intermediis et posticis testaceo-annulatis. Long. lin. circa $4\frac{1}{2}$, ♀.

Head and thorax black, the latter transverse, a little contracted in front and near the base, anterior angles moderately prominent, hind angles acute; sides and base finely margined, basal sulci short, not well defined. Elytra ample, convex finely but visibly punctured, black or bluish-black, with a violet reflection, and with two red round spots, the anterior largest equally distant from suture and margin and near the humeral callus; the posterior not so well defined, nearer to the suture than the margin. Antennæ and legs black, the middle and hind femora testaceous in their thickest part.

Hab.—Philippine Islands. One specimen (♀?) from Waterhouse collection and two (♀?) in British Museum collection.

This species is allied to *E. bipustulatus*, Gorham [Endomyceci Recitati, p. 38], but is rather larger, and, in addition to other differences, the thorax and front legs are entirely black. I believe it was collected by Mr. Cuning.

Fam. *CORYNOMALIDÆ*.

Genus *CORYNOMALUS*, Erichs.

Corynomalus colon, n. sp.

Ferrugineus, antennis thorace duplo longioribus, clavâ et articulis duobus precedentibus nigris, elytris nitidis, disperse fortiter punctatis, nigro-cœruleis margine toto suturâque ferrugineis, thorace binotato. Long. lin. 4, ♂ ♀.

Mas, tibiis intermediis apice incurvis, abdominis segmento ultimo infra bituberculato.

Var. a.—Elytris fasciâ dorsali abbreviatâ ferrugineâ.

Thorax with the sides almost straight, a little contracted at the apical angles, which are of the usual form; hind angles right, disc uneven with two black spots. Elytra

cordate, longer and more pointed behind than in *discoideus*, with large scattered punctures, the interstices with smaller ones, and the reflexed margin with a row of larger ones; their colour is almost black, with the entire margin and suture narrowly testaceous. Antennæ unusually long, joints 4—8 being nearly equal to each other; 6 joints are red, the 7th, 8th and club black. Legs and body beneath pale ferruginous.

Hab.—Cayenne. Two specimens, ♂ and ♀, in my own collection.

Allied to *discoideus*. The ♀ is the var. a, the ♂ shows no trace of a fascia.

Corynomalus coriaceus, n. sp.

Ferrugineus, elytris semiopacis subtiliter coriaceis, chalybeis, antennarum clavâ nigrâ. Long. lin. 4—4½, ♀.

Head finely but not very closely punctured; thorax transverse, twice as broad as long, anterior angles acute, but their apex rounded, sides sinuate, hind angles right, a little deflexed; surface uneven, the longitudinal sulci, though linear, yet lying in two rather wide impressions, its sides and base margined by a very fine line. Elytra ample, subcordate, very convex, and longitudinally gibbous; steel blue, not shining, the margin very narrowly, and apex ferruginous; there is a tendency to the same colour near the scutellum and suture, and this is more distinct in two examples I have than in the third; puncturing distinct, but the punctures irregular in outline and very lightly impressed, and at unequal distances from each other, giving a coriaceous appearance to the elytra. Antennæ of moderate length, entirely pale ferruginous with the exception of the club, which is black; the latter short and with its joints closely articulated. Legs and body clear rusty-red.

Hab.—New Fribourg, French Guiana.

This species should follow *C. quadrimaculatus*, Erichs. Three examples in my own collection from Deyrolle's.

Fam. LYCOPERDINIDÆ.

Genus MYCETINA, Mulsant.

Mycetina candens, n. sp.

Oblongus, rufo-ferrugineus, pube brevi aureo-flava vestitus; elytris thorace amplioribus, crebre subtiliter

punctatis; antennis piceis, articulis tribus primis, ultimoque rufis. Long. lin. $2\frac{1}{4}$.

Thorax nearly twice as wide as long, anterior margin excavated but not deeply; sides rounded and contracted in the apical third, parallel below this point, front angles acute and depressed, hind angles right; longitudinal sulci arcuate and moderately impressed; hind margin depressed and finely margined. Elytra ample, and rather convex, clothed with a fine golden-yellow pubescence, interspersed here and there with rather more rigid setæ; their sides scarcely margined, rather narrowed to the base, and evenly rounded at the apex. Very finely and closely, but evidently and evenly punctured. Antennæ stout, longer than the head and thorax taken together, basal joint stout; 2nd short, half the length of the 3rd, which is longer than the 4th; 4th to 8th of nearly equal length, a little longer than wide; 9th gradually widened from the base to the apex, where the width equals the length; 10th transverse, apical transverse, trapezoid—this with the first three red, the rest pitchy black, the 4th and 5th only being rather lighter. Legs red, hind tibiæ a little bent.

Hab.—Ceylon. From Mr. Andrew Murray's collection.

Obs.—I have not seen *Mycetina castanea*, Gerst., to which this insect seems allied. Unlike as it is in general appearance to the typical species of the genus, I cannot find any character by which it could be satisfactorily separated from it.

Mycetina africana, n. sp.

Oblonga, subparallela, picea, nitida; elytris leviter parcius punctatis, callo humerali pedibusque dilutioribus; antennis nigro-piceis basi et apice summo piceis. Long. lin. $1\frac{1}{2}$.

About the size of, and rather nearly allied to, *M. ancoriger*, longer and entirely pitchy, with the exception of the antennæ, which are nearly black; the two basal joints and apex light pitchy, 2nd joint very short, 3rd to end gradually thickened, 9th and 10th transverse; apical joint trapezoidal, its base dark, the remainder light pitchy. Head slightly pubescent. Thorax fully twice as wide as long, the disc convex, basal sulci deep triangular impressions; hind margin depressed, sides almost parallel in their basal half, hind angles nearly right. Elytra very little wider than the thorax, their surface more convex than in

M. ancoriger; humeral callus prominent and glabrous, the rest of the disc uniformly, and distinctly, but not deeply punctured.

Hab.—Cameroon Mountains.

This is the first species of *Mycetina* I have seen from Africa, and it fully agrees with the Eastern members of the genus. At present I can discover no characters to separate the tropical species generically from those of the northern temperate zone.

Genus *EPOPTERUS*, Erichson.

Epopterus Clara, n. sp.

Ovalis, testaceus, fere impubis, parcius leviter punctatus, nitidus; antennis articulis quatuor ultimis, clytris maculis septem, duabus basalibus, tribus discoidalibus, duabus ante apicem nigris. Long. lin. $1\frac{3}{4}$.

Thorax widest at the base, considerably narrowed in front, sides sinuate, and finely margined; anterior angles rather blunt, hind angles acute; its disc evenly, not closely punctured, more strongly so at the hind angles; elytra widest at about one-third their length from the base, sides evenly rounded from base to apex, finely margined, the margin vanishing before the apex; disc finely, sides more coarsely punctured; humeral callus not large but distinct; each with seven irregularly-shaped black spots, arranged—two basal (of which the external one is just below, partly on the callus), two medial, *confluent* near the margin, one irregular and not very distinct near the suture, two a quarter the length of the elytra from the apex; of these the inner one is the larger, linear, and obliquely placed. Antennæ pale yellow, with the club and one joint preceding black; legs pale.

The smallest *Epopterus* I have yet seen, being rather smaller than *E. histrio* and of nearly similar form. It is easily recognized by having none of the usual varied brown pattern, only black spots; and *four* joints of the antennæ black.

Hab.—Amazons.

Epopterus dives, n. sp.

Brevis, piceus, nitidus, parcius sat fortiter punctatus; clytris piceo-brunneis maculâ basali triramosâ, fasciâque

apicali interruptâ irregulari flavis, nigro-marginatis; antennarum articulis quatuor ultimis nigris. Long. lin. 2.

Very near to *E. quæsitus*, Gorh. [Endom. Recit. p. 51], but presenting the following points of difference:—The antennæ are darker and have four joints at the apex entirely black, their club is longer and not so abrupt; the thorax is narrower in front, the hinder angles more acute, its sides are therefore not *parallel* near the base, the basal sulci also converging, the sides are also somewhat *thickened and elevated*. The pattern of the yellow markings is also different, especially of the sub-apical fascia, which in this species is in the form of an irregular lunule, the convex side towards the base.

Hab.—Also from the Amazon district.

Genus STENOTARSUS, Perty.

[Section B. a.]

Stenotarsus leoninus, n. sp.

Oblongo-ovatus, castaneus, obsolete striato-punctatus, pube brevi dense vestitus; antennis ferrugineis, articulis tribus ante-penultimis obscurioribus, thorace antrorsum angustato. Long. lin. 3.

Of the size, and very nearly allied to *S. ursinus*, Gerst. Head and thorax scarcely perceptibly punctured, the latter narrowed from the base to the middle, from which the sides are rounded in to the anterior angles; lateral margin only slightly narrowed at the base. Elytra very obsoletely punctured, the striæ being only visible near the humeral callus, densely but very finely clothed with golden pubescence. Antennæ with the joints proportioned as in *ursinus*, but with the 7th, 8th and 9th darker; with this exception, the whole insect is nearly concolorous, which, with the differently-shaped thorax, finer punctuation and striæ and closer pubescence, easily distinguish it from *ursinus*, its only near ally.

Hab.—Philippine Islands. From the collection of G. R. Waterhouse, Esq.

Stenotarsus Philippinarum, n. sp.

Breviter ovatus, late ferrugineus, flavo-pubescent, thoracis margine laterali deplanato et elevato, retrorsum attenuato; elytris striis octo punctatis abbreviatis, internis minus distinctis; antennarum clavâ nigrâ, apice

piceo, articulis precedentibus longitudine æquali. Long. lin. $2\frac{1}{4}$.

About the size of *S. castaneus*, Gerst., but of a lighter colour, and with the striæ of the elytra not produced into the apical third. Thorax evenly contracted to the front, its sides a little rounded, lateral margin raised and flattened, narrowed to hind angles, which are acute. Elytra with eight punctured striæ visible very little behind the middle, the interstices not punctured, clothed thickly with a short, yellowish, upright pubescence; humeral callus moderately prominent. Antennæ with the club equal in length to the preceding eight joints, basal joint equal to two following; 2—8 not longer than wide, bead-shaped—these of the same colour as the body; 9 and 10 each about equal in length to three of the preceding, black; 11 ovate, black with pitchy-red apex.

Hab.—Philippine Islands. Two specimens from the collection of G. R. Waterhouse, Esq.

Stenotarsus tabidus, n. sp.

Breviter ovatus, pallide ferrugineus, pube flavo densius vestitus, thoracis margine laterali deplanato, æquali, latiore, elytris striis septem abbreviatis, obsolete punctatis; antennis articulis quinque penultimis infuscatis. Long. lin. $2\frac{1}{2}$.

Head and thorax very finely, scarcely visibly punctured, the latter with the lateral margins wide and not raised above the adjoining part of the disc, not narrowed behind; basal sulci tolerably deeply impressed. Sides considerably less rounded than in the preceding species, but contracted towards the front. Elytra with seven or eight punctured striæ very obsoletely impressed, especially the internal ones, and vanishing in the apical third. Densely and evenly covered with a velvety, yellow pile.

Antennæ with the 2nd to 8th joints *longer than wide*; two first joints of club as wide as long, terminal joint acuminate, twice as long as wide, and red, the five preceding being fuscous.

This species, though allied to *S. Philippinarum*, is rather larger, has the antennæ differently coloured, and with a much less heavy club; the sides of the thorax not elevated; the elytra less distinctly striated, and more densely pubescent.

Hab.—Philippine Islands. Collection of G. R. Waterhouse, Esq.

Stenotarsus Indianus, n. sp.

Oblongus, sub-parallelus, rufo-testaceus, crebre fortius punctatus, elytris disco rufo-piceo, punctorum seriebus sex irregularibus impressis; thorace elytrorum latitudine, æquali. Long. lin. $1\frac{1}{2}$.

Thorax transverse, the width more than twice the length, disc even, thickly and rather strongly punctured, basal sulci represented by two foveæ not extending beyond the middle, but outwards to the lateral margin, which is therefore a little raised at the base; lateral margin flat, nearly of even width, anterior angles produced in front of the eyes. Elytra thickly and strongly punctured, the punctures coalescing and becoming digested into rows to represent the striæ usual in this section; these, however, are very indistinct, except near the humeral callus; their general colour is rufo-piceous, the suture and external margin being testaceous. Antennæ fuscous, the two basal joints red, club laxly articulated.

The peculiar parallel form, transverse short thorax, and punctuation of this species, easily separate it from any known to me.

Hab.—Northern India.

[Section B. b.]

Stenotarsus russatus, n. sp.

Sub-orbicularis, convexus, brunneus, tenuiter pubescens, antennis crassis, articulis sex vel septem ultimis piceo-nigris; thorace transverso, sparsim fortiter punctato, margine laterali deplanato et elevato, antrorsum latissimo; elytris fortiter striato-punctatis, interstitiis punctis minoribus, striis omnibus distinctis; pedibus dilute brunneis. Long. lin. $1\frac{1}{2}$.

Evidently nearly allied to *S. vallatus*, Gerst., but in addition to the differently coloured antennæ, it presents the following points of discordance with that species, judging by the description. The raised lateral margin of the thorax has its surface flattened rather than convex, the disc is distinctly, but sparingly, punctured, there being room between the separate punctures for others of the same size; the striæ, or rather series of large punctures on the elytra, are all distinct.

Hab.—Ceylon; from the collection of Andrew Murray, Esq.

XXI. *Observations on the genus Helota, M'Leay, with description of a new species from Japan.* By Rev. H. S. GORHAM.

[Read 6th July, 1874.]

THE genus *Helota* was established by M'Leay, in the "Annulosa Javanica," for an insect from Java, *Helota Vigorsii*, which he described then as "one of the most curious and novel forms of the whole collection." Since then Westwood has made known a second species, *H. Mellyi*, from India, in "The Oriental Cabinet," and Hope a third, *H. Guerinii*, in "The Coleopterist's Manual." The genus is in every way a most remarkable one, and stands alone as a most aberrant, or rather as a highly developed, and so isolated form in the group to which M'Leay, as I believe, has rightly assigned it, viz., the *Necrophaga*. That Mr. Lewis should have found a fourth species in Japan, which by its habits, feeding at the sap exuding from the bores of the *Cossus* larva, as well as by its curious sexual characters, confirms its location there near to *Ips*, will be admitted as one of the most interesting of his discoveries in the far East, and not less the fact of this tropical genus extending so far north, though this is a point with which his collections there have familiarized us.

M'Leay has, I think, laid too much stress on a supposed affinity to the *Erotyliens*, and especially to *Languria*, based it would seem on nothing more than the elongate form, clavate antennæ, and metallic hue; the tarsal structure is essentially distinct.

It is true, indeed, that in this latter respect *Helota* diverges widely from *Ips*, for while in that it is the fourth joint that is minute, here the first is very small and concealed by the socket of the tibiæ at their insertion. If, however, we regard the general habit of the species, together with the curious elongation of the elytra in the female, there can be little doubt of its true location, for the same disparity is found in *Ips*, where it is the female that has the longer, and sometimes acuminate, elytra. But while thinking that *Ips* is the nearest ally *Helota* has, I

cannot help (in accordance with my view on the families of the ENDOMYCICI) expressing an opinion that before long it will be found conducive to uniformity of system, to consider such sections as the *Ipinæ* worthy of the title of families, and that the high development of such a genus as *Helota*, as well as its tarsal peculiarities, would justify its separation into a family by itself.

Group NECROPHAGA.

Fam. NITIDULIDÆ (*Ipinæ*).

Genus HELOTA, M^cLeay.

Helota gemmata, n. sp.

Oblongus, subparallelus, æneo-piceus, nitidus, crebre fortiter punctatus; elytris striato-punctatis, interstitiis elevatis, extus irregularibus; interstitio quarto maculis duabus parvis lucidis, luteis. Long. lin. $5\frac{1}{2}$ —7, ♂ ♀.

Mas, tibiis anticis leviter incurvatis et interne carinatis; elytris apice obtuse rotundatis; abdomine segmentis sex apertis, segmento quinto medio depressione lato, hoc dense cupreo-piloso, segmento sexto precedente plus duplo angustiore, margine laterali incrassato atque elevato, apice triangulariter exciso.

Femina, elytris apice acuminato, abdomine segmentis quinque apertis, quinto medio apicem versus nonnihil depresso, glabro.

Head produced in front, almost rostrate; eyes oblong, depressed, slightly elevated in the middle, upper surface closely and deeply punctured, the punctures near the eyes and in front finer and confluent, in the raised middle portion distinct. Thorax widest at base, the sides hardly rounded at all, gradually narrowed in front, crenulate; disc coarsely punctured, punctures confluent, several raised impunctate portions varying in individuals in size and number, but of which a central basal one divided in front, and two elongate ones on each side, are the most constant; hinder angles acute and produced, as is also the base in the middle; anterior margin sinuate, angles rounded and not much produced. Elytra each with nine or ten striæ, coarsely and irregularly punctured, often coalescing and leaving the interstices as detached raised portions, the two yellow spots on each have apparently

been developed from two such portions of the fourth interstice. In some specimens the striae are more regular than in others, and in these the spot presents a form which has so often puzzled me to divine the cause in *Coleoptera* of a detached, polished, raised callus, and of which I believe the above is the explanation, the rows of punctures having in some instances become fixed after the formation of the tubercle. The colour of the upper surface is bronze, of the underside pitchy, brassy on the sides of the thorax, the abdomen rufous; legs and antennæ pitchy red, knees and club of the latter darker.

Mr. Lewis says, "this species is abundant in the South East of Nipon, from Hiogo through Kawatchi to Yokohama. I could not find it in Kiushiu, nor has it been received from Yesso. A few examples have been received from Shanghai, so that it may have a fairly wide range westward. It occurs with the *Cossus* in company with *Ips Chinensis* in elm and Spanish chestnut, is active during June and July in the heat of the day, and when disturbed will run and then fall, but rarely takes wing. It is confined to the plains, not appearing at low or intermediate altitudes."

XXII. *A Revision of the Hymenopterous genera Cleptes, Parnopes, Anthracias, Pyria and Stilbum, with descriptions of new species of those genera, and also of new species of the genus Chrysis from North China and Australia.* By FREDERICK SMITH.

[Read 6th July, 1874.]

Fam. CLEPTIDÆ, Dahlb.

Genus CLEPTES, Latr.

1. *Cleptes semiaurata*, Latr.

Sphex semiaurata, Linn. Faun. Succ. No. 1661; Syst. Nat. i. p. 946.

Chrysis semiaurata, Fabr. Syst. Ent. p. 359.

Ichneumon semiauratus, Fabr. Ent. Syst. ii. p. 210.
Panz. Faun. Germ. 51, 2.

Cleptes semiaurata, Latr. Hist. Nat. Ins. xiii. p. 236 (1804); Fabr. Syst. Piez. p. 154; St. Farg. Ann. du Musée, vii. p. 119; Shuck. Mon. Chrys. Ent. Mag. iv. p. 159; Dahlb. Hym. Eur. ii. p. 15; Smith, Mon. Chrys. Ent. Ann. (1862), p. 82; Chevr. Chrys. du Bassin du Léman, p. 117.

Hab.—Europe.

2. *Cleptes nitidula*.

Ichneumon nitidulus, Fabr. Ent. Syst. ii. p. 184.

Cleptes nitidula, Latr. Hist. Nat. xiii. p. 236; St. Farg. Ann. du Musée, vii. p. 119; Fabr. Syst. Piez. p. 154; Panz. Faun. Germ. 106, 11; Shuck. Mon. Chrys. Ent. Mag. iv. p. 159; Dahlb. Hym. Eur. ii. p. 12; Smith, Mon. Chrys. Ent. Ann. (1862), p. 84; Chevr. Chrys. du Bassin du Léman, p. 121.

Hab.—Europe.

3. *Cleptes fasciata*.

Cleptes fasciata, Dahlb. Hym. Eur. ii. p. 12.

Hab.—Brazil.

4. *Cleptes ignita*.

Ichneumon ignitus, Fabr. Ent. Syst. ii. p. 184.

Cleptes ignita, Fabr. Syst. Piez. p. 155; Dahlb. Hym. Eur. ii. p. 18.

Hab.—Barbary; Italy; Austria.

5. *Cleptes aurata*.

Cleptes aurata, Dahlb. Hym. Eur. ii. p. 20.

Hab.—Turkey.

6. *Cleptes orientalis*.

Cleptes orientalis, Dahlb. Hym. Eur. ii. p. 20.

Hab.—Turkey.

7. *Cleptes Aurora*.*

Female.—Length 4 lines. Variegated with blue, purple and green; the scutellum of a reddish-orange; the meta-thoracic spines, the base of the abdomen, and the basal joint of the intermediate and posterior tarsi, white; the anterior wings hyaline, brown at their base, and with a broad fascia of the same colour beyond the base of the stigma. Head and thorax very closely and strongly punctured; the scutellum smooth, shining and very convex; the post-scutellum produced into a prominent, obtuse, conical tubercle; the abdomen smooth and shining; the coxæ, trochanters, and base of the femora beneath, whitish. The vertex and mesothorax purple; the meta-thorax greenish, and the abdomen with purple tints in certain lights.

Hab.—Ega (Brazil).

Fam. PARNOPIDÆ, Dahlb.

Genus PARNOPES, Fabr.

1. *Parnopes carnea*.

Chrysis carnea, Fabr. Syst. Entom. p. 357 (1775);
Ent. Syst. ii. p. 240; Rossi, Faun.
Etrus. ii. p. 75, tab. viii. fig. 5 (1790).

Parnopes carnea, Latr. Gen. Crust. et Ins. iv. p. 47;
Fabr. Syst. Piez. p. 177; Dahlb.
Dispos. p. 17; Hym. Europ. ii.
p. 385; Lucas, Explo. Sc. de
L'Algér. iii. p. 16; Chev. Chrysid.
du Bassin du Léman, p. 127.
Hab.—Europe, Algeria.

2. *Parnopes elegans*.

Parnopes elegans, Klug, Symb. Phys. Dec. v. tab. 45,
fig. 1, ♀; Dahlb. Hym. Europ. ii.
p. 382.
Hab.—Ambukohl, Lower Nubia.

3. *Parnopes denticulata*.

Parnopes denticulata, Spin. Ann. Soc. Ent. France,
vii. p. 455, ♂; Dahlb. Hym.
Europ. ii. p. 382.
Hab.—Egypt.

4. *Parnopes Fischeri*.

Parnopes Fischeri, Spin. Ann. Soc. Ent. France, vii.
p. 455, ♀; Dahlb. Hym. Eur. ii.
p. 383.
Hab.—Egypt.

5. *Parnopes viridis*.

Parnopes viridis, Brullé, Hist. Nat. des Ins. (St. Farg.)
iv. p. 13, ♂.
Hab.—Pondicherry.

6. *Parnopes smaragdina*.*

Female.—Length $4\frac{1}{2}$ lines. Head and thorax green, abdomen green, with tints of blue in certain lights. Head, thorax and tegulæ of the wings strongly punctured, the scutellum most coarsely so; the scape of the antennæ green, the flagellum black, with one or two of the basal joints obscurely rufo-piceous. Thorax: the posterior margin of the post-scutellum trilobate, the central lobe small and rounded; wings fusco-hyaline, darkest towards their base; legs green, with the tarsi and tibiæ within rufo-testaceous. Abdomen: finely and closely punctured; on the basal segment the punctures are distant at its base,

and very fine and close at its apical margin; the apical margin of the third segment finely denticulate; the base and apex of the segment violet.

The male, in colour and punctuation, exactly resembles the female, the apical margin of the fourth segment being similarly denticulated.

Hab.—The Gambia, Senegambia.

7. *Parnopes sinensis*.*

Male.—Length $5\frac{1}{4}$ lines. Head and thorax green, with blue and purple tints; abdomen purple at the base and apex, the intermediate portion flesh-coloured; wings pale fusco-hyaline. Head and thorax with coarse, deep, confluent punctures, the tegulæ also coarsely punctured. Abdomen: the basal and apical segments coarsely punctured, the intermediate segments rather more finely punctured. The clypeus with the anterior margin truncate, the lateral angles being rounded. The face covered with silvery-white pubescence; the antennæ have a short silvery pubescence and are of an obscure rufo-piceous colour; behind the eyes and the posterior margin of the vertex blue. Thorax: the posterior margin of the prothorax blue; the scutellum blue; a broad stripe down the middle of the mesothorax, and the post-scutellum blue-black; the tegulæ large, very wide posteriorly, and of an obscure blue-black, with the outer margin pale testaceous. Abdomen: the flesh-colour of the two intermediate segments extends over the margin of the basal segment at its middle portion; the tibiæ and tarsi flesh-coloured.

Hab.—Shanghai, North China.

In an important structural character this species differs from the European one, *Parnopes carnea*; the tegulæ of the wings are larger and of a different form, their posterior margin is very slightly rounded, subtruncate; in *P. carnea* they are of a pointed oval shape.

8. *Parnopes chrysoprasina*.

Male.—Length $4\frac{1}{4}$ lines. Green, with the basal margin of the second, third and fourth segments blue. Head, thorax and abdomen closely and strongly punctured, the thorax rather more strongly so than the head or abdomen; the antennæ rufo-testaceous, one or two of the basal joints tinged with green. The legs rufo-testaceous, the femora darkest, and, as well as the tibiæ, tinged with green; the

tegulae strongly punctured, tinged with green and having their outer margin pale testaceous; wings pale fulvo-hyaline; the post-scutellum nearly quadrate, a little longer than broad, deeply notched in the middle of the posterior margin. The apical segment with two large deep foveae near its apical margin, which is denticulated.

Hab.—North Carolina.

Genus ANTHRACIAS.

Anthracias, Klug, Berichte über die Verhand. der Akad. Berlin, 1839, p. 2.

Of this genus I have only seen a single imperfect specimen; it is destitute of wings and has only one posterior tarsus. Klug, in the "Berichte," has not given detailed generic characters, but he mentions the essential one, that of the abdomen being composed above of only two segments; beneath, four are distinctly visible, exclusive of its retractile ovipositor; the claws of the tarsi have a single tooth beneath; the antennae resemble those of *Chrysis*, the second joint being only half the length of the third, the fourth joint about equal to the second, as are all the following joints. The insect has the exact resemblance of *Parnopes*, to which it is closely allied. In the specimen examined there is not a projecting rostrum as in *Parnopes*, but, the insect being in a mutilated condition, it may possibly be broken off.

1. *Anthracias Capensis*.

Female.—Length 5 lines. Head, thorax and apex of the abdomen black, the rest ferruginous; strongly punctured. Head and thorax very coarsely, closely and deeply punctured; the eyes large and ovate; the head narrowed and rounded behind the eyes; mandibles rufo-piceous in the middle. Thorax: the prothorax oblong, flattened above and slightly concave in front; its anterior margin transverse, the lateral margins parallel anteriorly to nearly half its length, from thence obliquely inclined outwardly to the tegulae of the wings; the metathorax truncate posteriorly, the margin of the truncation raised and acute; the tibiae and tarsi ferruginous. Abdomen: the first segment scarcely half the length of the second, the latter with a central longitudinal carina, which becomes most elevated towards the apical margin of the segment, which is rounded and edentate; the apical third of the abdomen black, the

inner margin of the black portion deeply sinuated laterally; the punctures strong, more or less confluent and oblong in form, particularly so on the disk; beneath, entirely ferruginous.

Hab.—Cape of Good Hope.

Fam. CHRYSIDIDÆ, Leach.

Chrysididæ, Leach, Brit. Encycl. (1817); Dahlb. Hym. Europ., ii. 95 (1854).

Genus CHRYSIS.

Chrysis, Linn. Syst. Nat. ed. xii. vol. i. p. 947.

Div. 1. The apical segment of the abdomen entire.

1. *Chrysis artifex*.*

Length 5 lines. Head and thorax violet, with blue tints; abdomen golden, with shades of carmine in certain lights. The face with silvery-white pubescence; the antennæ also with a fine white pile, the three basal segments tinged with violet; the third segment of the abdomen of a bright carmine tint, the second slightly so on the disk in certain lights; the legs blue, with the tarsi black; wings subhyaline. The thorax slightly narrowed before the tegulæ; the anterior lateral angles subacute; the post-scutellum elevated into a slight tubercle. Head and thorax strongly and very closely punctured. Abdomen: finely and very closely punctured, most strongly so at the base; the second segment with a central longitudinal carina, it is also faintly traced on the basal segment; beneath golden, with a coppery lustre on the two apical segments.

Hab.—Hong Kong.

2. *Chrysis faustus*.*

Female.—Length $4\frac{3}{4}$ lines. Green with shades of blue; head and thorax strongly punctured, the abdomen very finely so.

Head and prothorax of a bright golden-green, the rest of the thorax of a dark green with brighter shades laterally; the tegulæ smooth and bright green. Abdomen: each segment more or less blue-green towards its basal margin;

the femora and body beneath golden-green; the tarsi and antennæ black, both more or less green above towards their base. The head, prothorax, scutellum and post-scutellum very strongly punctured, the latter angulated; wings subhyaline, the nervures black; the extreme base of the abdomen very strongly punctured; the rest of the abdomen very closely and finely punctured.

Hab.—Queensland.

The description is that of the most highly coloured example seen; others are of a darker green, inclining to blue, but the puncturing is constant and the carina on the second abdominal segment is always strongly marked.

3. *Chrysis reversus*.

Length $3\frac{1}{2}$ lines. Green inclining to olive above; beneath, bright green; sometimes of an uniform colour; occasionally dark green, with the prothorax and metathorax brighter, as well as the posterior margins of the segments of the abdomen; the wings hyaline, the nervures black. The head, thorax and base of the abdomen strongly and closely punctured, the abdomen finely so; the punctures on the second and third segments are oblong, placed transversely, and more or less confluent.

Hab.—Tasmania.

4. *Chrysis viridifrons*.*

Female.—Length 3—4 lines. Obscure green, blue and purple; the face and body beneath bright green. The pro- and meso-thorax and also the posterior margins of the segments of the abdomen green; the metathorax, abdomen and vertex violet or more or less purple; the legs blue or more or less green, the tarsi dusky; wings hyaline, the nervures black. Head, thorax and base of the abdomen strongly and very closely punctured, the punctures more or less confluent. Abdomen finely and closely punctured; the fineness of the puncturing gradating from the base to the apex, where it is very fine and close.

Hab.—Tasmania.

Div. 2. The apical segment of the abdomen with 4 teeth.

5. *Chrysis interceptor*.*

Length $4\frac{1}{4}$ lines. Green, with shades of blue above; the face and body beneath golden-green. A blue spot in

the middle of the prothorax, the central portion of the mesothorax, and the second and third segments of the abdomen, blue; the apical margins of the segments green. The head, thorax and base of the abdomen with close, large, semi-confluent punctures; the abdomen closely and more finely punctured; the two intermediate teeth rather more approximating than the outer ones to the intermediate ones.

Hab.—Hunter River, New South Wales.

6. *Chrysis intrudens*.

Female.—Length 4 lines. Varied with blue and green, beneath entirely green. The mesothorax above, the tegulae, scutellum and second and third segments of the abdomen blue, their apical margins tinged with green. The thorax narrowed from the tegulae to the anterior angles of the prothorax. The head and thorax strongly punctured, the punctures close and in parts confluent; wings subhyaline, the nervures fuscous. The abdomen strongly punctured; a smooth shining carina runs from the base of the second segment to the apex of the abdomen, the margin with four very acute teeth, the two central ones approximating, the lateral teeth being separated widely from them; the central teeth produced beyond the lateral ones.

Hab.—Australia.

7. *Chrysis parallelus*.

Length $3\frac{1}{2}$ lines. Head and thorax blue above, with tints of green in parts; abdomen olive-green, with the margins of the segments bright green. Head: the face green, and with a white pubescence. Thorax: the posterior lateral angles of the metathorax bright green, as well as the legs and body beneath; wings subhyaline, the nervures black. The sides of the thorax parallel. The head and thorax very strongly punctured, the punctures very close and most coarse on the scutellum and post-scutellum. The abdomen strongly punctured, the teeth at its apex short, not very acute, the two central ones approximating and slightly produced beyond the lateral ones.

Hab.—Australia.

8. *Chrysis volatilis*.*

Female.—Length 5 lines. Elongate, narrow, and of a violet colour, with slight tints of green on the head and thorax. Head: the margin of the vertex and inner orbits of the eyes green; the scape, and two following joints of the antennæ, green above. The sides of the thorax nearly parallel; the anterior angles of the prothorax acute; the posterior angles of the metathorax green; wings subhyaline, the nervures fuscous. Head and thorax strongly and closely punctured; abdomen finely punctured; the basal margin of the first segment with a deep central fovea, and a broader lateral one.

Hab.—Shanghai.

9. *Chrysis janthinus*.*

Female.—Length 5 lines. Bright violet, with shades of blue and green. The face and three basal joints of the antennæ bright green, the legs and entire body of the insect beneath bright green; the vertex violet, a narrow green line at the inner margin of the eyes. Thorax: the sides nearly parallel or very slightly narrowed anteriorly; the prothorax with the anterior angles rounded, of a violet colour, with a narrow green border at its posterior margin; the central portion of the mesothorax purple, the lateral portions violet; the scutellum and metathorax green; wings slightly fuscous. Abdomen violet; the sides of the first segment and the posterior margin of the second greenish, the margin widest laterally. The head and thorax very strongly punctured; abdomen evenly and strongly punctured, most strongly so at the base.

Hab.—Shanghai.

10. *Chrysis fossulatus*.

Length $4\frac{1}{2}$ lines. Head and thorax green, slightly tinged with blue; the abdomen violet. Face and body beneath bright green; the legs green, tinged with blue above; the vertex green. Thorax narrowed from the tegulæ forwards; the anterior angles of the prothorax acute, the margin hollowed to the curvature of the head; the sides of the mesothorax tinged with green, as are also the lateral angles of the metathorax; the posterior margin

of the basal segment of the abdomen green; there is also, in certain lights, a tinge of green on the sides of the two following segments and also on their apical margins; the apical margin of the posterior segment armed with four acute teeth, the two central ones approximating; a smooth central line down the second and third segments; on each side of the central carina on the third segment are four deep oblong fossulets in the place of the usual row of punctures.

Hab.—Shanghai.

Div. 3. The apical segment of the abdomen with 5 teeth.

11. *Chrysis imperiosus*.*

Female.—Length 4 lines. The face, the lateral angles of the metathorax, the legs and body beneath, brilliant golden-green; the vertex and thorax above coppery, with a purple lustre; abdomen violet, with the sides more or less coppery; the post-scutellum has posteriorly a violet tint. The sides of the prothorax sinuated; the head, thorax and abdomen of equal width. The wings subhyaline, the nervures fuscous. The head and thorax coarsely and closely punctured. Abdomen closely and strongly punctured.

Hab.—Moreton Bay.

12. *Chrysis Shanghaiensis*.*

Female.—Length 5—6 lines. Bright green, with golden tints, adorned in parts with blue. The face and three basal joints of the antennæ golden-green; the vertex behind the ocelli blue. Thorax: the disk of the mesothorax more or less blue, the central division usually so; wings fuscous, palest towards their apical margins, and having a purple iridescence; legs green, with their tarsi black. Abdomen: the basal half of the second and third segment bright blue. The head and thorax strongly and closely punctured, the scutellum and post-scutellum very closely so; the latter produced into a conical tubercle, which is flattened above. Abdomen strongly and evenly punctured, but much more finely so than the thorax; beneath, the insect is bright golden-green, with black spots at the basal margins of the segments of the abdomen.

Hab.—Shanghai, N. China.

Div. 4. The apical segment of the abdomen with 6 teeth.

13. *Chrysis principalis*.*

Female.—Length $6\frac{1}{4}$ lines. Head and thorax green; abdomen violet, with the apical margins of the segments narrowly bright green. The face golden-green; the three basal joints of the antennæ blue, with the first joint green in front; the rest of the antennæ black; an ovate blue spot on the vertex inclosing the ocelli. Thorax: a transverse blue line on the prothorax; the scutellum, tegulæ and disk of the mesothorax occasionally more or less blue; the anterior wings fusco-hyaline. The body beneath, and the legs also beneath, bright golden-green, the latter blue above; the tarsi black. The head and thorax with deep, close, coarse punctures; the abdomen finely and closely punctured; some large, deep punctures at its extreme base, and a row of similar punctures along the apical margin of the basal segment.

Hab.—Shanghai, N. China.

This species has the thorax sometimes green, with only a faint blue transverse line on the prothorax, which is slightly narrowed anteriorly and has the lateral angles acute.

14. *Chrysis gemmatus*.

Female.—Length 5 lines. Green, with black markings on the head and thorax; the second segment of the abdomen with a bright-golden ocellate spot on the second segment, towards the apical margin laterally; beneath, bright green, with golden tints; the face golden-green. A black spot on the vertex inclosing the ocelli, an ovate one in the middle of the prothorax, and an oblong one on each side of it; the central divisions of the mesothorax, and the scutellum, more or less black; the apical segment of the abdomen blue. The head and thorax coarsely and closely punctured, the scutellum most strongly so; the abdomen more finely punctured and with a few large punctures at its extreme base. Wings fuscous, the posterior pair palest.

Hab.—Australia.

15. *Chrysis agilis*.*

Female.—Length 4 lines. Dark blue; the face, body beneath and the legs more or less green. Strongly punctured; the punctures very close on the head and thorax:

rather more distant on the abdomen; the puncturing on the first segment nearly as strong as on the thorax; on the two following segments much finer, increasing gradually in fineness to the apex; wings hyaline, the nervures black.

Hab.—Queensland.

16. *Chrysis bipartitus*.

Female.—Length 4-4½ lines. Head and thorax purple, abdomen golden-green. The face green, the body purple beneath, the femora purple, the tibiæ green; the face with silvery-white pubescence. The head and thorax coarsely punctured; wings subhyaline, the nervures fuscous. The abdomen strongly punctured, its extreme base most strongly so.

Var. The thorax tinged in parts with green.

Hab.—Australia.

17. *Chrysis varicolor*.

Length 4 lines. Head and thorax varied with blue and green; abdomen green, with bright-golden and coppery lustre. Head blue; prothorax green, with a transverse interrupted blue line in the middle; the mesothorax with the middle of the disk and the scutellum blue, the rest purple above, margined laterally with blue; the metathorax green; wings fuscous, not very dark, and with their base subhyaline; the nervures black; the legs and body green beneath. Abdomen: the first segment green, with more or less of a golden lustre, the two following segments with a bright-coppery effulgence, the sides more or less golden; the teeth on the apical margin acute, nearly equidistant, and in a slight curve. The head and thorax strongly and closely punctured. Abdomen rather finely punctured, most strongly so at the base; on the second and third segments the punctures more or less confluent.

Hab.—Foo-chow.

Div. 5. The apical segment of the abdomen with 7 teeth.

18. *Chrysis festinus*.*

Female.—Length 5 lines. Head and thorax green, abdomen blue, with the extreme base more or less green, beneath golden-green. Head: the face covered with silvery pubescence. The anterior angles of the prothorax acute. The head and thorax strongly and very closely punctured;

at the sides of the thorax the punctures are more or less confluent. Abdomen: the first segment strongly punctured, the punctures not very close except at the sides of the segment; the second and third segments less strongly punctured, and having a central, smooth, longitudinal line; the apical margin of the third segment with seven teeth, the central one smallest. Wings hyaline, the nervures fuscous.

The male exactly resembles the female.

Both sexes have seven teeth.

Hab.—Perth, Western Australia.

Genus PYRIA, St. Farg.

This genus is composed of species that form a section of the *Chrysididæ* intermediate between the genus *Stilbum* and that of *Chrysis*. Its claims to generic distinction appear to be based on a difference in the relative length of the joints of the antennæ, and in the post-scutellum being produced into a conical pointed tubercle, which projects over the base of the abdomen; the neurulation of the wings in the genera *Pyria* and *Chrysis* being essentially the same; *Stilbum*, however, appears to have a permanent difference in the marginal cell, it being, in the extensive series of examples that I have examined, open at its apex; in the genera *Pyria* and *Chrysis* it is closed. That an occasional exception to this circumstance will be found is certain, but that is only what is to be expected in so extensive a genus as *Chrysis*; I have observed exceptions to the rule in some of the beautiful species from Brazil.

The number of joints of which the antennæ of the species belonging to the genera *Stilbum*, *Pyria* and *Chrysis* is composed is thirteen, that number being found in both sexes of the species. The third joint of the antennæ, in the genus *Stilbum*, is the longest, as it is also in the genus *Chrysis*, but in the genus *Pyria* the fourth is the longest. The latter genus has the post-scutellum produced in the form of a conical spine over the base of the abdomen, but the cone, or tuberculate process, is not hollowed out as in the genus *Stilbum*; I only know of a single exception to this characteristic,—it is found in *Pyria smaragdula* of St. Fargeau, *P. stilboides* of Spinola; in this species the conical spine is hollowed out above, but the excavation is coarsely punctured.

The produced post-scutellum, although one of the essential characters of the genus *Pyria*, is also found to characterize one or two species of *Chrysis* from Western Africa; these belong to the division of that genus in which the third abdominal segment is armed with four teeth. Belonging to the same division, and also from the same locality, several species of *Chrysis* have the post-scutellum triangular and slightly projecting; these species form apparently a connecting link between the genera.

Dahlbom has united the species of the genus *Pyria* with those of *Chrysis*, but the general aspect, or rather habit of the species is sufficient in my opinion to warrant their separation; the type of the genus, *Pyria lyncea*, closely resembles a true *Stilbum* in its general form; it has the head narrower than the thorax, the post-scutellum produced, the convex abdomen, gradually narrowed from the base to the apex, whilst the construction of the antennæ separates them at once from the genus *Chrysis*. There are, however, species which are placed in the genus *Pyria* which have not the post-scutellum produced; *P. ocellata* is an example of this: the genus, therefore, will probably be regarded as a mere section of the extensive genus *Chrysis*; any well-defined section of an extensive genus is advantageous, whether a distinctive name be assigned to it or not.

1. *Pyria lyncea*.

Chrysis lyncea, Fabr. Syst. Ent. p. 357. *Chrysis lyncea*, Fabr. Ent. Syst. ii. 240; Syst. Piez. p. 172; Dahlb. Hym. Europ. ii. 339.

Pyria armata, St. Farg. Encycl. Méth. x. 459; Brullé, Hist. Nat. des Ins. Hym. (St. Farg.) iv. p. 21.

Pyria Reichei, Spin. Ann. Soc. Ent. France, vii. 448.

Pyria canaliculata, Brullé, Hist. Nat. Ins. Hym. iv. p. 20.

Pyria lyncea, Gerst. Peters' Reise Mossamb. p. 519.

Hab.—Sierra Leone; Mozambique; Gambia; Angola; Knysna; Cape of Good Hope.

2. *Pyria stilboides*.

Pyria stilboides, Spin. Ann. Soc. Ent. France, vii. 446; Gerst. Peters' Reise Mossamb. p. 519.

Stilbum sexdentatum, Guér. Rev. Zool. p. 145 (1842).

Chrysis nobilis, Klug, Symb. Phys. Dec. v. Tab. xlv.

Fig. 2; Dahlb. Hym. Eur. ii. 347.

Pyria smaragdula, Brullé, Hist. Nat. Ins. Hym. iv. 19
(nec St. Farg.).

Hab.—Egypt; Gambia; Mozambique; Senegal; Algeria.

3. *Pyria plurimacula*.

Pyria plurimacula, Brullé, Hist. Nat. Ins. Hym. (St. Farg.) iv. 22.

Hab.—Madagascar.

4. *Pyria oculata*.

Chrysis oculata, Fabr. Syst. Ent. p. 357; Ent. Syst. ii. p. 239; Dahlb. Hym. Eur. ii. p. 310.

Pyria oculata, Brullé, Hist. Nat. des Ins. Hym. iv. p. 19.

Hab.—India.

5. *Pyria violacea*.*

Length $5\frac{1}{2}$ lines. Bright violet, with more or less of shades of green or purple. The head and thorax with strong, coarse, confluent punctures; the abdomen with strong punctures, those at the base strongest and most dense; the post-scutellum produced into a stout projecting conical spine, the spine coarsely punctured and having a central longitudinal smooth carina; the margin of the apical segment of the abdomen with four teeth and also a tooth on its lateral margins. Beneath, the insect is usually bright green; the legs usually green beneath and blue above, or entirely green; wings fusco-hyaline, the nervures black.

Var. The head more or less green.

Hab.—Australia; Swan River, &c.

6. *Pyria Proteus*.*

Length $4\frac{1}{2}$ — $5\frac{1}{4}$ lines. Blue, green, or a mixture of those colours. Strongly punctured; the punctures on the sides of the pro- and meso-thorax more or less confluent; the scutellum more strongly punctured; the post-scutellum produced into a conical projecting tubercle, which is coarsely punctured and has a central longitudinal smooth carina:

wings subhyaline, the nervures black. The apical segment of the abdomen with six teeth, four apical and two lateral.

Var. 1. Green, with a violet spot enclosing the ocelli; the sutures of the mesothorax, the scutellum and post-scutellum violet or purple; the base of the abdomen and middle of the first segment, as well as a transverse changeable fascia in the middle of the second and the third segments, violet.

Var. 2. Thorax and abdomen more or less green; the abdomen violet; beneath usually green.

This species closely resembles *P. lyncea*; it differs from that insect, being of a broader form: the abdomen is not so narrow towards the apex; the basal segment has the lateral angles rounded, not sub-acute as in *P. lyncea*, and the teeth at the apex are wider apart.

Hab.—Australia; North and West Australia; Swan River; Lizard Island.

7. *Pyria bispilota*.

Pyria bispilota, Guér. Rev. Zool. v. p. 145 (1842).

Hab.—Madagascar.

8. *Pyria orientalis*.

Pyria orientalis, Guér. Rev. Zool. v. p. 146 (1842).

Hab.—Sumatra.

9. *Pyria Mouattii*.

Pyria Mouattii, Guér. Rev. Zool. v. p. 145 (1842).

Hab.—Madagascar.

10. *Pyria Gheudei*.

Pyria Gheudei, Guér. Rev. Zool. v. p. 145 (1842).

Hab.—Madagascar.

Genus *STILBUM*, Spin.

The genus *Stilbum*, notwithstanding the researches and labours of many eminent Entomologists, has hitherto been arranged in erroneous exactitude. Fabricius was the first author who described, with any degree of satisfactory correctness, the type of the genus. This was done in his first systematic work, "Systema Entomologiæ."

Guérin-Meneville, in his "Revue Zoologique," 1842,

described a new species from Madagascar, and Brullé, in the "Histoire Naturelle des Insectes Hyménoptères," enumerates three species,—*S. splendidum*, *S. calens*, and the *S. viride* of Guérin. Dahlbom, in his elaborate monograph, also gives three species, but he overlooks Guérin's species altogether; he describes a species, *S. Wesmaeli*, as new, but which is, in my opinion, a variety of the male of *S. amethystina*. Dr. Gerstaecker is of opinion that *S. splendidum* of Brullé and Dahlbom, and *S. calens* of Fabricius, constitute but a single species, and in this opinion I coincide. There is a distinctive difference in coloration, which is frequent in *S. calens*, but which I have never seen in the exotic specimens; but I know of no structural character or difference in sculpture that would warrant their separation. In a large series of *S. calens*, specimens of a burnished coppery splendour are found, having only the apical segment of the abdomen blue; others have the head and thorax blue and green, with the abdomen coppery; such varieties I have not found in Asiatic or African specimens, but among the latter are found examples entirely of a deep blue colour.

One of the principal objects that I have in writing the present paper is to rectify the unavoidable errors which Hymenopterists have committed; in the second place, I am desirous of describing a few beautiful species of *Chrysididæ* which are not in Dahlbom's work.

The type specimens of Fabricius's species, preserved in the Banksian collection, are now deposited in the British Museum; a careful examination of them enables me to correct former errors. It is acknowledged that the descriptions of Fabricius are frequently too succinct and devoid of specific distinctions to enable the student to identify his species. The descriptions of many of the elder Entomologists may have served in their day for the discrimination of a species from the few by which it was then surrounded, but they are, in the present state of our knowledge, totally inadequate for that purpose.

Of the genus *Stilbum*, Fabricius, under the generic name *Chrysis*, described two species, *C. splendida* and *C. amethystina*, the latter being the insect hitherto regarded as his *C. splendida*. On referring to the "Systema Entomologia" the first descriptions of these species are found, *C. splendida* being placed at the head of the genus, it is distinguished from all the rest by the appellation "Magna"; the smallest having the prefix "Parva"; this

is attached to *C. lucidula*. Fabricius, in describing his species *Chrysis amethystina*, gives the locality New Holland, and says in the Banksian Museum, his description distinguishing it as a species of the modern genus *Stilbum*; "Thorax viridis, scutello prominulo, concavo." In the British Museum are specimens also from Australia; the size of the "*amethystina*" is exactly four and a half lines, French measure; it is of an entirely blue colour, in this respect resembling many examples from Africa. Dahlbom, relying on the authority of a specimen which he saw in the Museum at Kiel, which, if named by Fabricius, it was certainly subsequent to his visit to England, when he named the insect preserved in the Banksian collection, and, trusting to his memory, he gave the name "*amethystina*" to a species belonging to the genus *Chrysis*, as now restricted. The habitat New Holland may possibly have influenced some Hymenopterists to believe it probable that the locality given is an error; such is certainly not the case, as other examples have been received from that country; neither *Stilbum* nor *Chrysis* appear to be generally abundant there,—I have only seen two of the former and five of the latter genus; of the genera *Cleptes*, *Omalus*, *Hedychrum*, *Euchraeus*, or of *Parnopes*, I have not seen a single species from Australia.

The habits of some of the species of the family have been carefully observed and recorded; these belong to the genera *Hedychrum*, *Chrysis*, and one or two other genera found in Europe; of the habits of exotic species very little has, to my knowledge, been observed. In the British Museum are several nests of *Eumenes tinctor*, sent from Port Natal by Herr Gueinzus, who bred from them specimens of *Stilbum amethystina*, the parasite of the wasp. *Parnopes carnea* is known to be the parasite of *Bembex rostrata*. *Elampus Panzeri* I have observed entering the burrows of *Mimesa bicolor*. Some of the species of the genus *Hedychrum* do not appear to confine their attacks to a particular species; *Hedychrum lucidulum* is parasitic on species of *Halicti*; this habit I have observed myself, having on one occasion found it numerous, entering the burrows of *Halictus leucozonius*. *Hedychrum ardens* is the parasite of *Mimesa unicolor*, and *Hedychrum roseum* is parasitic on the larva of *Tachytes pompiliiformis*, and also, according to Shuckard, upon that of *Arpactus tumidus*. *Omalus auratus* is said by Latreille to be parasitic on *Philanthus triangulum*;

and, Walekenaer says, also upon *Cerceris ornata*; I have bred it in large numbers from bramble sticks containing cells of *Cemonus unicolor*, and I have seen it repeatedly entering the burrows of *Megachile argentata*.

The species of the genus *Chrysis*, judging from the amount of knowledge which we at present possess, are principally parasitic on species of *Vespidæ*, and some by no means confine their attacks to one insect; *Chrysis ignita* is known to attack the larvæ of several wasps as well as of bees; Walckenaer found it parasitic upon *Halicti*. I have bred it from nests of *Osmia bicornis*; Prof. Westwood bred it from the nest of the solitary wasp, *Odynerus Antilope*, and Mr. Chapman reared it from that of *Odynerus spinipes*. I once obtained many individuals from a nest of *Vespa rufa*. *Chrysis cyanea* is the parasite of *Chelostoma florissomne*, and *Chrysis bicolor* is the parasite of *Osmia parietina*; Zetterstedt bred the latter *Chrysis* from nests of *Osmia nigriventris*. *Chrysis neglecta* and *C. bidentata* are well-known parasites of *Odynerus spinipes*, details of the economy of these two *Chrysidæ*, and their mode of attack and development, are given by Mr. T. Algernon Chapman in the sixth volume of the Entomologist's Monthly Magazine.

1. *Stilbum splendidum*.*

Chrysis splendida, Fabr. Syst. Entom. p. 357, ♀; Ent. Syst. ii. p. 238; Syst. Piez. p. 170.

Female.—Length 8—8½ lines. Head usually bright green, sometimes blue on the vertex; the three basal joints of the antennæ green, occasionally blue. Thorax blue; the prothorax frequently tinted with green at the sides, also occasionally narrowly so at its posterior margin; the mesothorax with a broad, longitudinal, lateral, green stripe; the posterior angles of the metathorax frequently more or less green; the legs green; wings fusco-hyaline, the nervures black. Abdomen blue, with usually a tint of green at the sides of the first segment; the second segment frequently green posteriorly; beneath, with changeable tints of blue and green. The head and thorax strongly and closely punctured; the abdomen more finely and not so closely punctured; a central, narrow, impunctate line on the second segment; the apical margin of the third segment armed with four acute teeth.

The male is smaller, about six and a half lines long, and is coloured like the female; the two central spines on the apical segment of the abdomen scarcely project beyond the lateral ones, but in the females of this genus they invariably do.

Hab.—Australia (Sydney; Moreton Bay; Queensland; Port Essington; Swan River).

2. *Stilbum amethystinum*.*

Chrysis amethystina, Fabr. Syst. Entom. p. 359, ♂;
Ent. Syst. ii. p. 243; Syst.
Piez. p. 176.

Chrysis calens, Fabr. Ent. Syst. ii. p. 239; Syst. Piez.
p. 171; Rossi, Faun. Etrus. ii. 74.

Stilbum splendidum, Brullé, Hist. Nat. des Ins. Hym.
(St. Farg.), iv. p. 15, ♂, ♀;
Dahlb. Hym. Eur. ii. p. 358;
Gerst. Peters' Reise Mossamb.
p. 519; Smith, Journ. Linn.
Soc. iv. p. 144.

Stilbum calens, Spin. Ins. Ligur. i. p. 9; Brullé, Hist.
Nat. des Ins. Hym. (St. Farg.),
iv. p. 16; Dahlb. Hym. Eur.
ii. p. 360, ♂, ♀; Lucas, Explo.
Sc. de l'Algér. iii. p. 315, pl.
17, fig. 13; Chevr. Chrys. du
Bassin du Léman, 7.

Stilbum Wesmaeli, Dahlb. Hym. Eur. ii. p. 359, ♂.

Stilbum amethystinum, Smith, Journ. Linn. Soc. iv.
p. 177.

Hab.—Australia; Senegambia; Sierra Leone; Angola;
Port Natal; Cape of Good Hope; Mozambique; Mada-
gascar; Egypt; Arabia; Algeria; Calcutta; Tarancore;
Himalaya; Singapore; Java; Celebes; Aru; Gilolo;
Ceram; New Guinea; China; Japan; Persia; Turkey;
Barbary; Greece; Italy; France; Dalmatia; Sicily.

3. *Stilbum viride*, Guér.

Stilbum viride, Guér. Revue Zool. Mai, 1842, p. 144, ♀;
Brullé, Hist. Nat. des Ins. Hym.
(St. Farg.) iv. 16, ♂.

Hab.—Madagascar.

In the British Museum is a specimen from Madagascar collected by Madame Ida Pfeiffer, which I believe to be

Guérin's species; it is entirely green above and beneath, with tints of blue on the thorax; the antennæ beyond the three basal joints being black, the middle division of the mesothorax is blue black, inclining to purple; the apical segment of the abdomen is golden-green. The thorax is entirely covered with strong confluent punctures, as are also the tegulæ; the wings smoky, with black nervures. Abdomen: the first and second segments rather more closely and strongly punctured than in *Stilbum amethystina*, the third segment entirely covered with fine confluent punctures. The lateral angles of the basal segment rounded, in *S. amethystina* they are acute.

Neither Guérin nor Brullé mention the different structure of the basal segment of the abdomen; this is probably an oversight, if not, the insect I describe will prove to be a new species.

NOTE.—The types of the species distinguished by a * are in the British Museum.



XXIII. *Descriptions of some new species of Exotic
Cetoniidæ.* By J. O. WESTWOOD, M.A.,
F.L.S., &c.

[Read 6th July, 1874.]

Goliathus albo-pictus, fem., Bohemann, Ins. Caffr.
Part ii. p. 10 (1857); Westw. Thes. Entom. pl. 1,
fig. 2, ♂.

Goliathus Kirikianus, G. R. Gray, Proc. Zool. Soc.
Lond. Jan. 26, 1864.

The female insect, figured in Pl. VII. fig. 1, being unique, we do not possess the means of its sexual identification as the female of the *Gol. albo-pictus*, although there can be but little doubt that such is the case.

It is black, varied on the hind part of the head, pronotum and elytra with white markings. The head is thickly punctured, oval in front, with two impressions between the eyes bearing two small somewhat triangular white spots. The mandibles have the horny part slender (Pl. VII. fig. 1*a*). The maxillæ (Pl. VII. fig. 1*b*) have the upper lobe horny, terminated by two obtuse teeth, or rather its apex is emarginate; the lower lobe forms a strong curved spine. The mentum (Pl. VII. fig. 1*c*) is not so broad as in the male, rounded at the sides, deeply notched in the produced centre of its anterior margin. The prothorax is sub-heptagonal, the middle of the anterior margin forming a small tubercle, the hind margin produced and rounded over the scutellum; the anterior half of the lateral margin diverges considerably from the head, but the posterior sides converge towards the humeral portion of the elytra; the middle of the disc has a deep impression, extending from the centre to the front tubercle; the disc is densely covered with punctures of large size, especially towards the posterior margin; down the centre of the depression is a slender white line; another short, conical extends on each side obliquely from the front tubercle; there is a moderately wide white mark parallel to the lateral margin, united at each end with a very slender one.

The scutellum is smooth, with a strongly impressed line on each side. The elytra are covered with very minute

punctures in the black portions, all the white markings being impunctate; these markings are very numerous and irregular; they are chiefly undulating and transverse on the disc, the outer margin of each and the apex, extending upwards along the suture, being broadly white. On the disc are to be observed faint traces of two broad longitudinal costæ. The podex is densely covered with minute punctures. The body beneath is entirely black, the metasternum with a strong central impressed line, the abdominal segments convex; the legs short and strong, the anterior tibiæ with three teeth, the four posterior ones with a sharp central spine in the middle of the outer edge, the inner edge fringed with black hair; the anterior tarsi are unusually long and slender.

Length 22 lines; width of shoulders of elytra $11\frac{1}{2}$ lines.

Habitat Limpopo. In Mus. Higgins.

Chalcothea auripes, Westw. (Pl. VII. fig. 2.)

Tota opalino-viridis, fere impunctata, capite postice, tibiis tarsisque aurco-cupreis; clypeo profunde bifido, medio lateribusque elevatis punctatis; prothorace angulis posticis prominulis, disco pone medium sulco profundo longitudinali impresso, lateribus crebre punctatis et marginatis; scutello in medio depresso; elytris latis, convexis, suturâ depressâ; tuberculo ordinario acuto, apice ipso nec non pygidio transverse aciculatis; mesosterno lineâ tenuissimâ nigrâ vix impresso, segmentis abdominalibus convexis lævibus, penultimo serie submarginali punctorum, apicali leviter punctato; pedibus elongatis, tibiis 4 posticis extus in medio inermibus.

Long. corp. lin. 17; lat. humer. elytrorum lin. $7\frac{1}{2}$.

Habitat Borneo. In Mus. D. Higgins.

Gymnetis subpunctata. (Pl. VII. fig. 5.)

Piceo-atra, velutina; capite integro punctatissimo, elytris suturâ costisque duabus parum elevatis, lateribus discoque prope suturam guttis nonnullis stramineis fasciâque tenui irregulari undulatâ subapicali ejusdem coloris; pedibus præsertim basi anticorum rufo-hirtis; metasterno, coxis posticis, et lateribus abdominis lutescentibus, nigropunctatis; prosterno acuminato deflexo, setoso; mesosterno parum porrecto (Pl. VII. fig. 5a).

Long. corp. lin. 10; lat. humer. elytr. lin. 5.

Habitat Ecuador. In Mus. Higgins.

Allorhina hypoglauca. (Pl. VII. fig. 6.)

Supra fulva opaca, nigro-punctata, subtus læte opalino-viridis, capite feminae inermi, clypei margine antico integro, supra viridi parum tincto, thoracis punctis nonnullis irregularibus minutis nigris; elytris subplanis, haud costatis, punctis plurimis parvis rotundis maculisque tribus lateralibus nigris, fasciâ transversâ paullo pallidiori indistinctâ mediâ, alterâque inter medium et apicem, apiceque ipso impunctatis; epimeris et apice supra detecto coxarum posticarum viridi-tinctis; pedibus nigris, femoribus opalino-viridibus: corpore subtus opalino-viridi, processu sternali serieque macularum in medio abdominis nigris.

Long. corp. lin. 12; lat. humer. elytr. lin. 6.

Habitat Nicaragua. In Mus. Hopeano Oxoniæ et Higgins.

Parachilia Bufo. (Pl. VII. fig. 7.)

Cetonia Bufo, Gory and Percheron in Silberm. Rev.

Ent. iii. 129. Burmeister, Handb. d. Ent. iii. 558

(*Parachilia Bufo*).

Tota nigra, opaca, velutina, capite antice acute bifido, punctato, maxillis dense rufo-barbatis, prothorace leviter punctato, supra convexo, subquadrato, lateribus antice rotundatis, postice fere rectis, margine tenui levi laterali, postico ante scutellum fere recto; hoc fere impunctato, elytris pone humeros prothorace multo latioribus, prope scutellum depressis, postice sensim angustatis, nigris, leviter punctatis singuloque suturâ costisque duabus parum distinctis impunctatis; podice rugoso; mesosterno simplici haud porrecto, rotundato, metasterno abdomineque nitidis, illo sulco tenui medio longitudinali, hujus segmentis convexis serieque subapicali punctorum oblongorum, impressis; pedibus crassis, tibiis anticis extus tridentatis, posticis quatuor in medio extus spinâ unicâ armatis ♀.

Mas pedibus elongatis. Var. elytris obscure rufis.

Long. corp. lin. 16½; lat. humer. elytr. lin. 9.

Habitat Madagascar. In Mus. D. Higgins et Hopeano Oxon.

No figure having hitherto been published of this interesting species, I have added a description and figure of the female. The male of the nearly allied *P. Leroyi* of Coquerel is figured in the Annales of the French Entom. Society for 1859, pl. 7, f. 1.

Anatona alboguttata (Pl. VII. fig. 4), Burmeister,
Handb. iii. p. 504.

Crassa, chalybeo-nigra, opaca, capitis clypeo attenuato angulis anticis extus porrectis, pronoto crebre punctato, marginibus lateralibus, lineolâ mediâ subhastatâ, cum duabus aliis discoidalibus irregularibus cretaceis; scutelli apice rotundato, maculâ ovali, epimeris etiam maculâ, elytrorum singulo maculis 7 vel 8 rotundis, pygidioque quatuor minoribus, omnibus cretaceis; dorso pronoti et elytrorum fere impunctato et striolis destituto, suturâ pone medium parum elevatâ, pronoto lateribus rotundatis antice angustatis, margine postico ante scutellum emarginato; pedibus mediocribus; tibiis anticis acute tridentatis, posticis 4 extus in medio 1-dentatis: corpore infra nigro, nitido, luteo-setoso, abdominis segmentis mediis in medio depressis; lateribus metasterni, coxarum posticarum et segmentorum abdominalium cretaceo-maculatis; processu sternali vix porrecto obtuse rotundo, serie transversâ setarum notato.

Long. corp. lin. $7\frac{1}{4}$; lat. humer. elytr. lin. 4.

Habitat in India. In Mus. Higgins.

No figure has hitherto been published of this pretty species.

Glycyphana mediata, Westw. (Pl. VII. fig. 3.)

Nigra, pronoto elytrisque piceo-nigris, velutinis; capite nitido, clypeo elongato apice rotundato, margine antico parum elevato, punctato; vertice inter oculos transversim elevato; antennis pedibusque piceo-castaneis; pronoto transverso, lateribus rotundatis, angulis posticis rotundatis, margine postico ante scutellum parum emarginato, margine omni tenui aurantio, postico paullo latiori et in medio subinterrupto, dorso crebre cicatricoso-punctato; scutello elongato-trigono, apice acuto; elytris magis nigricantibus fasciâ dentatâ mediâ, ad suturam interruptâ, apicibusque aurantiis, singulo striâ suturali profundâ, punctisque fere indistinctis notatis; tibiis anticis acute tridentatis, posticis quatuor in medio extus dente acuto armatis: corpore infra piceo, vage punctato, setis luteis vestito; processu sternali vix porrecto, apice conico, abdomine convexo in individuo unico viso.

Long. corp. lin. 8; lat. humer. elytr. lin. $4\frac{1}{2}$.

Habitat Borneo. In Mus. Higgins.

Diaphonia ruficornis, Westw. (Pl. VIII. fig. 6.)

E *Diaphoniis* typicis differt clavâ antennarum elongatâ.

Brevis, crassa, convexa, piceo-nigra, elytris cyaneo- et purpureo-tinctis; nitida, valde rugosa, capitis clypeo integro subrotundato supra concavo, margine elevato, disco granuloso; occipite griseo-setoso; antennis rufis, articulo primo nigro, clavâ valde elongatâ; maxillis inermibus (Pl. VIII. fig. 6a), mento oblongo ovato, margine antico parum emarginato setoso, palpis labialibus elongatis; pronoto convexo, lateribus rotundatis, margine postico ante scutellum parum emarginato, dorso aeneo-tincto, punctatissimo, lateribus scabris; scutello elongato-trigono, apice acuto; elytris scabris irregulariter punctatissimis, suturâ costisque duabus in singulo elevatis, apice rotundato; tuberculo ordinario, in quo costae desinent, parum distincto: corpore infra valde setoso, processu sternali haud porrecto, tibiis anticis extus 3-dentatis, dente basali multo minori, 4 posticis pone medium valde emarginatis, duabus posticis crassis angulo externo apicali extus producto et truncato.

Long. corp. lin. 7; lat. humer. elytr. lin. 4.

Habitat in Australiâ. In Mus. Higgins.

Obs.—*Diaphonia rugosæ* proxima.

Euryomia quadrimaculata, Westw. (Pl. VIII. fig. 8.)

Nigra, subtus luteo-setosa; capite nitido punctatissimo; clypeo oblongo angulis anticis rotundatis, margine in medio antico vix emarginato; pronoto lato, velutino, brunneo, margine omni flavido, lateribus rotundatis, margine postico supra scutellum parum rotundato-producto; scutello trigono, apice acuto; elytris latis, humeris rotundatis, velutinis, flavidis, singulo maculis duabus magnis brunneis, striâ suturali profundiori striisque nonnullis discoidalibus punctatis parum distinctis, pygidio granuloso setoso; tibiis anticis 3-dentatis, 4 posticis in medio extus 1-spinosis; processu sternali vix porrecto, lato, apice angulato, metasterno et segmentis convexis ventralibus rude punctatis.

Long. corp. lin. 5 $\frac{3}{4}$; lat. humer. elytr. lin. 3.

Habitat Madagascar. In Mus. Higgins.

Obs.—*Euryomia argenteæ* affinis.

Clinteria tricolorata. (Pl. VIII. fig. 4.)

Angusta, nigra, opaca, angulis anticis pronoti maculisque duabus magnis in medio laterali elytrorum binisque minoribus apicalibus cum duabus pygidii albis; angulis posticis pronoti et pygidio obscure rufis; clypei margine antico

acute emarginato, facie in medio elevatâ, vertice punctato, punctis posticis majoribus, maculis duabus parvis albis ad basin antennarum; pronoto punctato, angulis anticis maculâ ovali albo-cretaceâ, punctoque rotundo parvo subdiscoidali adjecto; elytris punctato-striatis, punctis semiovalibus aciculatis: corpore infra punctato glabro, metasterno utrinque maculâ magnâ albâ, maculâ minutâ in medio epimerarum, alterâque majori ad latera coxarum posticarum, segmentis duobus mediis abdominis maculâ parvâ laterali, pygidioque duabus, albis; segmentis mediis ventralibus longitudinaliter impressis; tibiis anticis maris tridentatis; processu metasternali elongato porrecto, apice parum recurvo; prosterno inermi.

Long. corp. lin. 7; lat. humer. elytr. lin. $3\frac{1}{2}$.

Habitat in Indiâ. In Mus. Higgins.

Pachnoda hilaris, ♀. (Pl. VIII. fig. 2.)

Obscure viridis, velutina; scutello, elytris et pronoto fulvo-rufis, hoc maculis duabus oblongis discoidalibus viridibus; metasterno utrinque maculâ magnâ laterali, coxis posticis maculâ minutâ, abdomine maculis 16, quadruplici serie digestis, albis; capite viridi nitido, clypeo emarginato, ante apicem transverse impresso, vertice convexo; pronoto et scutello impunctatis, illo ante scutellum emarginato, trisinuato, elytris inter medium et suturam longitudinaliter punctato, striatis, lateribus magis irregulariter punctatis; podice fere impunctato, viridi, utrinque maculâ rufo-fulvâ notato: corpore infra nitido, metasterno utrinque et femoribus longitudinaliter aciculatis, abdominis segmentis basalibus leviter punctatis, convexis, duabus apicalibus crebre punctatissimis; pedibus brevibus, tibiis anticis extus tridentatis; quatuor posticis in medio angulatis, intus fulvo-hirtis.

Long. corp. lin. $16\frac{1}{2}$; lat. humer. elytr. lin. 8.

Habitat Sierra Leone. In Mus. D. Higgins et Parry.

Anochilia (Pygora) conjuncta, Gory and Percheron,
 Descr. de n. Esp. Cetoines de Madag. Silberm. Rev.
 Ent. iii. 125. (Pl. VIII. fig. 5.)

Nigra, nitida, elytrorum disco castaneo-rufis, maculis sex rotundis albis apicalibus, pygidio duabus majoribus; capite punctato, clypeo porrecto quadrato, antice medio parum emarginato, angulis anticis rotundatis; pronoto fere levi subhexagono, lateribus in medio angulatis, pone medium fere rectis parallelis, scutello conico apice acuto; elytris

nitidis, humeris valde prominentibus, lateribus pone humeros profunde emarginatis, intus humeros deplanatis; inter suturam et medium disci profunde sulcato-striatis; basi apice et regione suturali nigris, partibus discoidali et externa castaneo-rufis; tuberculis duobus ordinariis subapicalibus fere obliteratis; pedibus longis, piceo-castaneis; corpore infra nigro, albido-variegato, lateribus prosterni bimaculatis; mesosterno utrinque bimaculato, maculis duabus transversis metasterni lateribus, segmentis ventralibus abdominis convexis in medio vix depressis; maculis transversis lateralibus, alterisque subquadratis mediis, albidis; processu sternali vix porrecto, apice rotundato setoso; maxillis inermibus (Pl. VIII. fig. 5a), mento apice emarginato, emarginaturâ in medio acutâ (Pl. VIII. fig. 5b); tibiis anticis bidentatis; tibiis 4 posticis ante apicem oblique emarginatis, tarsorum articulis intermediis latioribus apice spinosis, calcari interno pedum 2 posticorum elongato, apice incurvo subclavato, unguibus longis.

Long. corp. lin. 7; lat. humer. elytr. lin. 3.

Habitat Madagascar. In Mus. Higgins.

The description of this species given by Messrs. Gory and Percheron is so short and unsatisfactory that I have considered it useful to publish a figure and full description of it.

Anochilia marginicollis, Westw. (Pl. VIII. fig. 7.)

Nigra, nitida, lateribus pronoti et coxarum posticarum, humeris elytrorum plagisque duabus discoidalibus, aurantio-rufis; capite punctato, clypeo profunde inciso, angulis anticis productis acutis; lateribus profunde canaliculatis; pronoto glabro dorso parum punctato, lateribus in medio angulatis, tenue marginatis, parte posticâ fere rectâ parallelâ, margine postico fere recto, ante scutellum vix emarginato, scutello longo subtrigono, apice vix acuto; elytris dorso planis, lævibus, nitidis, humeris tenue fulvo-rufis, lateribus pone humeros profunde emarginatis; singulo plagâ magnâ subovali ejusdem coloris notato; pygidio scabro: corpore infra cum pedibus nigris nitidis, processu sternali haud producto, obtuso, lateribus metasterni rude punctatis, abdominis segmentis ventralibus convexis, singulo serie mediâ transversâ punctorum notato, tibiis anticis tridentatis; 4 posticis in medio extus parum angulatis vix spinâ armatis.

Long. corp. lin. 12½; lat. humer. elytr. lin. 6.

Habitat Madagascar. In Mus. Hopeano Oxoniæ et Higgins.

I should have considered this to be the *Cetonia cingulata*, Gory and Perch. (Silberm. Rev. Ent. iii. p. 129), but that these authors describe their species as having the pronotum lobed and the sternum as short and triangular.

Stalagmosoma quadriguttata, Westw. (Pl. VIII. fig. 1.)

Angusta, capite nigro, nitido, clypeo parum emarginato, pronoto carneo-fulvo velutino, maculis duabus subtrigonis nigris, scutello acute triangulari cum elytris viridibus velutinis, his per paria striato-punctatis, singulo guttis duabus subapicalibus niveis; pygidio piceo-rufo, pedibus corporeque subtus nigris nitidis; capite punctato, punctis verticis majoribus; pronoto subtrigono, lateribus et margine postico rotundatis, disco sub lente crebre punctato, tibiis anticis tridentatis, tibiis quatuor posticis in medio parum angulatis; segmentis ventralibus ad latera puncto minuto albo notatis.

Long. corp. lin. 6; lat. humer. elytr. lin. $2\frac{2}{3}$.

Habitat in Angolâ (Rogers). In Mus. Higgins.

The anterior coxæ, the sternal process, and the hind edge of the fore femora are clothed with rows of short luteous hairs; the sternal process itself is not porrected and transverse; the sides of the metasternum and posterior coxæ are marked with numerous curved striæ arranged semicircularly. The abdomen beneath is very glossy, convex in the unique individual described; slightly punctured; the pygidium is marked with shallow circular cicatricose punctures; the striæ of the elytra are arranged in pairs, and are formed of elongated, slender and often longitudinally confluent punctures, forming, especially beyond the middle of the disc, uninterrupted, slender, black lines.

Stalagmosoma scalaris, Gory and Perch. Ceton. p. 249, pl. 47, f. 3. (Pl. VIII. fig. 3.)

Var.—*St. nigriceps*, Westw.

Angusta, supra saturate viridis, velutina; capite, corpore infra, pedibusque nigris, pronoti margine omni tenui fulvo, elytrorum humeris, fasciâ latâ submediâ, lineolâ tenuissimâ obliquâ sub-basali, alterisque irregularibus inter fasciam et apicem fulvis; pygidio corporeque subtus nigris; segmentorum abdominalium margine postico utrinque tenue albido; capite subnitido, crebre punctato,

clypeo emarginato, pronoti lateribus et basi elytrorum varioloso haud profunde punctatis, elytris striato-subpunctatis: corpore infra glabro, segmentis ventralibus basi et apice denticulato-punctatis.

Long. corp. lin. 6; lat. humer. elytr. lin. $2\frac{3}{4}$.

Habitat in Africâ occidentali tropicali. In Mus. Higgins.

This prettily marked species has the elytra curiously longitudinally striated, the striae being arranged in pairs on each side of the rows of fine punctures, and with the exception of the sutural curving inwards and terminating at about two-thirds of the length of the elytra, the apical portion of which is slightly variolose. The scutellum is rather long, narrow and obtuse at the tip; the anterior tibiae are tridentate, the basal tooth nearly obsolete: the four posterior tibiae are angulated in the middle of the outer edge rather than spined; the sternal process is not porrected, it is rather dilated in front and rounded.

The abdominal segments in the unique specimen described were convex.

DESCRIPTION OF THE PLATES.

- Pl. VII. fig. 1. *Goliathus albo-pictus?* ♀; 1a, mandible, 1b, maxilla, 1c, mentum, 1d, mesosternum.
 „ fig. 2. *Chalcothea auripes*; 2a, mesosternum.
 „ fig. 3. *Glycyphana mediata*; 3a, 3b, mesosternum.
 „ fig. 4. *Anatona alboguttata*; 4a, mesosternum.
 „ fig. 5. *Gymnetis subpunctata*; 5a, pro- and meso-sterna.
 „ fig. 6. *Allorhina hypoglauca*.
 „ fig. 7. *Parachilia Bufo*; 7a, 7b, mesosternum.
- Pl. VIII. fig. 1. *Stalagmosoma 4-guttata*; 1a, clypeus, 1b, 1c, mesosternum.
 „ fig. 2. *Pachnoda hilaris*; ♀ 2a, mesosternum.
 „ fig. 3. *Stalagmosoma scalaris*; 3a, 3b, mesosternum.
 „ fig. 4. *Clinteria tricolorata*; 4a, clypeus, 4b, 4c, mesosternum.
 „ fig. 5. *Anochilia conjuncta*; 5a, maxilla, 5b, mentum, 5c, mesosternum.
 „ fig. 6. *Diaphonia ruficornis*; 6a, maxilla, 6b, mentum.
 „ fig. 7. *Anochilia marginicollis*; 7a, mesosternum.
 „ fig. 8. *Euryomia 4-maculata*; 8a, clypeus, 8b, 8c, mesosternum.

XXIV. *Descriptions of new genera and species of Pselaphidæ and Scydmanidæ from Australia and New Zealand.* By D. SHARP.

[Read 2nd November, 1874.]

I HAVE much pleasure in offering to the Society the following descriptions of some small but interesting Coleoptera from the Antipodes. The insects described in this paper have been received by me from several sources; the Australian species from H. Edwards, Esq. (now of San Francisco), and Mr. Du Boulay, of West Australia; while the New Zealand species have been sent me by Mr. Edwards and by Mr. T. Lawson, of Auckland, through his brother, Mr. R. Lawson, of Scarborough.

Forty-four new species are here described, three of which belong to the family *Scydmanidæ*. I have about twenty other species of *Scydmanidæ* from Australia, most of which are apparently undescribed; but as many of these species are represented by but a single specimen, I have not thought it advisable to describe them, especially as I believe we may expect a paper from Dr. Schaufuss, of Dresden (who has acquired the rich material accumulated by Count Castlenau in this family), and who has such an extensive knowledge of these insects.

Of the family *Pselaphidæ* forty-one species are described; twenty-six from Australia, fifteen from New Zealand. No species of the family from New Zealand has been yet made known, so that these fifteen species contribute an important addition to our knowledge of the New Zealand fauna. These fifteen species I have distributed in six genera, two of which are considered new; while the other four are already described genera, all of which occur in Europe. It would, however, be incorrect to conclude from this fact that the New Zealand *Pselaphidæ* display a great affinity with the European *Pselaphidæ*; for it is probable that ultimately it will be considered correct to establish three other genera for species which I have placed in the genera *Tyrus* and *Bryaxis*; so that it would perhaps be more correct to state that the fifteen species of

New Zealand *Pselaphidæ* hereafter described belong to eight genera, two of which, viz., *Pselaphus* and *Euplectus*, are of wide distribution; while the other six will probably prove peculiar to the New Zealand islands and to Australia. Even, however, if the above data should be correct, it would still be very unwise to make any comparisons of the New Zealand fauna with other faunas from them, for the value to be ascribed to the genus is so vague and uncertain, that it is far better to base considerations of the kind alluded to on facts connected with species. If this be done with the New Zealand *Pselaphidæ*, we then remark that, in the first place, all the species known are peculiar to the islands, and next that the proportion of interesting forms is large. The *Dalma pubescens* stands so completely on the line between the groups *Pselaphini* and *Euplectini*, that these two groups can only in future be considered as two groups connected by a completely intermediate existing link, or synthetic type, as it would more ordinarily be called. Again, the four species described under the generic name *Sagola* are very interesting, owing to their close relationship with our anomalous European *Faronus Lafertei*.

I am inclined, therefore, to conclude that New Zealand is rich in *Pselaphidæ* (for it is certain that the fifteen species here made known can be but a small part of the species actually existing in the islands), and also that a considerable portion of the species will prove to be of an interesting and important nature.

I cannot pass by this opportunity of alluding to the great scientific importance that attaches to an accurate knowledge of the New Zealand fauna; and to the special importance of gaining as rapidly as possible a knowledge of its existing Coleoptera. There is, in my opinion, no part of the world that possesses such an immediate claim to the attention of Entomologists as do the New Zealand islands. They form, according to Huxley, one of the four great fauna-provinces of the world. They are remarkably isolated, and occupy a position of peculiar importance in the southern hemisphere: while what we actually know of their fauna, promises us a large proportion of primordial forms and of synthetic types, and of remarkable developments. But while we have great reason to hope that a knowledge of the New Zealand fauna will contribute largely to the solution of many important scientific questions, we have on the other hand only too

great reason to fear that the fauna itself is rapidly disappearing. Many causes may be suggested for this fact. The islands are stretched over a large space from north to south, and but a small one from east to west; and it is probable therefore that a large proportion of the species have small areas of distribution, and can therefore be easily killed out, while the great change that the colonization of the country and the cultivation of its soil must cause, assure us that such will certainly be the case. And it would, moreover, be probably correct to add that it is in all probability just the most interesting forms that are the first to disappear in such cases.

Under these circumstances, while thanking greatly those Entomologists who have commenced the collection of material for a fauna of these islands, I think we are warranted in asking them to persevere assiduously with their researches, and more particularly to neglect no opportunity of examining such portions of the islands as are at present free from what may, in a zoological sense, be correctly called the ravages of civilization.

PSELAPHIDÆ.

Ctenistes impressus, n. sp. Rufescens, antennis minus elongatis, prothorace subtransverso, lateribus evidenter calloso, impressione intermediâ basali antice sub-furcatâ, elytris brevibus. Long. corp. vix $1\frac{1}{2}$ mm.

Mas, pectore profunde impresso, abdomine segmento 3^o ventrali medio late leviter impresso.

Antennæ rather short, first and second joints short, rather thicker than the following ones; joints 3—7 scarcely differing from one another, rather slender, each about as long as broad; 8 and 9 distinctly broader than 7th, each about as long as broad; 10th joint rather stouter than 9th, scarcely so long as broad; 11th joint elongate and rather stout, about as long as the three preceding joints together, it is distinctly stouter than the 10th joint, but its length is not quite twice its width. Head small, with the anterior tubercles short, and connate, the fovea behind them indistinct; the two foveæ on the vertex, separated from one another only by a narrow space; the eyes small. Thorax much narrower than the elytra, about as long as broad, the sides distinctly dilated; the sides and front of the middle basal fovea are obscurely elevated, so that the fovea has a slight

appearance of being forked in front. Elytra much narrowed at the shoulders, distinctly longer than the thorax, each with a sutural and a discoidal stria, and with a few short scale-like hairs, their depressed extremity densely set with such hairs. Hind body thickly margined, rather short.

West Australia.

This species much resembles the insect described by King as *Tmesiphorus vernalis*, but is smaller, and has much shorter antennæ, and the hairs of the upper surface are much fewer, coarser and more scale-like, and its eyes are much smaller.

Ctenistes simplex, n. sp. Rufescens, antennis brevibus, prothorace leviter transverso, elytris thorace plus dimidio longioribus. Long. corp. $1\frac{1}{2}$ mm.

Antennæ short, joints 3—9 small and differing little from one another; the 8th and 9th not broader, but rather shorter than the 7th; 10th joint distinctly broader than 9th, not so long as broad; 11th joint thick, more than twice as long, and nearly twice as broad as the 10th. Head small, with the tubercles in front very short. Thorax much narrower than the elytra, not quite so long as broad, the sides but little dilated in the middle; the central fovea rather large, the lateral one indistinct. Elytra considerably narrowed at the shoulders, about one and a half times as long as the thorax.

Victoria: sent by Henry Edwards, Esq. I am not sure of the sex of the three individuals I have of this species. The *C. simplex* is closely allied to *C. impressus*, and is about the same size as that species, but is broader behind. Independently of the structure of the antennæ (the differences of which may be sexual), the two species may be distinguished by the shorter thorax of *C. simplex* and its simple, well-defined central fovea. *C. simplex* is also closely allied to *Tmesiphorus vernalis*, King, but is shorter, has the eyes smaller, and the thorax more transverse.

Ctenistes parvus, n. sp. Castaneus, nitidus, angustus, antennis sat elongatis, prothorace haud transverso, lateribus haud dilatatis. Long. corp. vix $1\frac{1}{3}$ mm.

Antennæ rather long, and for this genus slender, joints 3—7 small, slender and bead-like; joints 8—10 distinctly,

but not greatly elongate; 8th joint rather longer than broad, 9th scarcely so long as 8th; 10th scarcely stouter than 9th, about as long as broad; 11th joint elongate, about as long as the three preceding joints together, quite twice as long as broad. Head small, with the tubercles in front very short, the eyes small. Thorax quite as long as broad, the sides not dilated in the middle, so that it is not narrower at the base than in the middle, and is but little narrowed towards the front, the central fovea distinct, the lateral ones indistinct. Elytra about one and a half times as long as the thorax, not greatly wider at the extremity than at the shoulders.

Victoria: sent to me by Henry Edwards, Esq.

The single specimen described is, I dare say, a male. This is the smallest species of the genus with which I am acquainted.

Tyrus mutandus, n. sp. Rufescens, antice angustatus, sat dense setosus, impunctatus; pedibus elongatis; elytrorum striâ suturali basi foveolato. Long. $1\frac{3}{4}$ mm.

Antennæ longer than head and thorax, reddish-yellow, 1st and 2nd joints about equally stout; 1st longer than 2nd; 2nd about as long as broad; 3, 4, 5 about equal in length, each a little longer than broad; joints 6, 7, 8 slightly shorter than the preceding joints, especially the 8th; 9th joint stouter and longer than the 8th, about as long as broad; 10th joint slightly broader and a little shorter than 9th, not quite so long as broad; 11th joint stout, oval, as long as the two preceding ones, but stouter than they are. Head narrow, not half the width of the elytra, the antennæ approximate at their insertion, the tubercles contiguous but separated by a well-marked channel, on each side near the eye is a distinct fovea; the vertex is elevated, smooth and shining. Thorax longer than broad, only about half as broad as the elytra, much narrowed in front, behind the middle with a very deeply-impressed curved line, which terminates on each side in a deep but ill-defined impression; it has no punctures, but is clothed with a short upright pubescence. Elytra bright reddish-yellow, much narrowed at the shoulders, each with a sutural stria which is very deeply impressed at the base, and outside this a short, deep and broad humeral impression; they have no punctuation, but are clothed, especially about the sides, with a long, fine, upright, pale

pubescence. Hind body short and convex, pubescent, the first segment only slightly longer than the second. Legs long and slender, the claws of the tarsi small.

Auckland, N. Zealand: two specimens sent by Mr. Lawson. They show no differences from one another, and I do not know their sex.

This insect, though its characters agree in the main with those of *Tyrus mucronatus*, in its appearance and form comes much nearer the genus *Tychus*; and though it cannot be associated with that genus on account of the double claws, it will probably be ultimately referred to a distinct genus. The maxillary palpi appear in their structure to be about intermediate between the two genera. They are about as long as the head, 2nd joint very slender at the base, abruptly dilated towards the extremity; 3rd joint subglobular, but its point of insertion forms a very short stalk; 4th joint oval, but with a distinct fine stalk at its base.

Tyrus mirandus, n. sp. Pube erectâ vestitus; capite prothoraceque nigris, elytris sanguineis, abdomine castaneo, pedibus palpisque rufescentibus; antennis crassis; prothorace cordato; elytris basi quadrifoveolatis, striâ discoidali nullâ; abdomine subelongato, segmento quarto dorsali tertio longiore. Long. corp. fere 3 mm.

Mas, metasterno basi medio utrinque excavato, trochanteribus intermediis sublaminatis, margine posteriore medio dente brevi, acuminato; trochanteribus posticis prominentibus, acuminatis, abdomine apice impressione magnâ transversâ; tibiis posticis intus ante apicem spinâ elongatâ armatis.

Antennæ stout, moderately long, dusky reddish, a little thickened towards the extremity, 1st joint twice as long as the 2nd, 2nd about as long as broad; of joints 3—8 each one is slightly broader than its predecessor, the 4th joint being about as long as broad, the 8th distinctly transverse; joints 9 and 10 rather broader than the 8th, and rather strongly transverse; 11th joint about as broad as, and quite twice as long as the 10th; it is pointed at the extremity. Maxillary palpi with their last joint rather large, ovate, much broader than its predecessors. Head with the frontal tubercles distinct but flattened, and evidently separated; also with three rather large foveæ, the front one of which is placed immediately behind the

channel separating the tubercles, and it has also a fourth, less distinct, impression on the vertex. Thorax small in proportion to the after-body, much narrowed, the sides in the middle as it were explanate, with three foveæ of which the middle one is very distinct, and is connected with the base of the thorax by a fine short channel. Elytra longer than the thorax, with a distinct sutural stria which is impressed at the base, and has at the bottom of the impression at the extreme base a small pubescent fovea; outside this there is a deep humeral impression, at the extreme base of which is a still smaller pubescent fovea. The hind body is rather elongate; the first, second and third dorsal segments rather elongate and about equal to one another, the fourth segment still more elongate and deflexed. The claws of the tarsi two, unequal.

A single specimen of this very fine insect has been sent me from Victoria, by Henry Edwards, Esq. It is a very anomalous species; and though no doubt it will have to be placed as a genus quite distinct from *Tyrus*, I have contented myself at present with indicating its more important visible characters, without making a generic name for it, the single specimen I possess not allowing of an examination of its generic characters in a satisfactory manner.

TYRAPHUS, nov. gen.

Corpus elongatum, depressum. Caput sat elongatum, fronte canaliculato. Antennæ basi approximatae, 11-articulatae. Palpi maxillares medioeres, articulo primo haud observato; 2° sat elongato, leviter curvato, apicem versus crassiore; 3° brevi; 4° brevi, ceteris crassiore, subtriangulari. Metasternum elongatum. Abdomen sat elongatum, marginatum, segmento primo magno, ceteris abbreviatis. Coxæ posticæ distantes, haud prominulæ. Tarsi unguiculo singulo.

The species composing this genus appear to be closely allied to the species of *Pselaphus*; nevertheless the structure of the maxillary palpi (especially as regards their terminal joint) seems to me to necessitate their separation as a genus.

Tyraphus planus, n. sp. Depressus, sat elongatus, antice angustatus, testaceus, nitidus, capite prothoraceque opacis; hoc latitudine fere longiore, basin versus angus-

tato, ante basin obsoletissime curvatim-impresso; elytrorum apice abdominisque basi dense glanduloso-pubescente. Long. corp. $1\frac{1}{2}$ mm.

Mas, metasterno apice medio profunde impresso, abdomine segmento primo ventrali late sat profunde longitudinaliter impresso, apice medio tuberculo minuto.

Fem., metasterno apice obsolete impresso, abdomine simplice.

Rather shorter than *Pselaphus Heisei*, more depressed, and with the hind body narrower. Antennæ not quite so long as head and thorax, rather stout, first joint stout, moderately long; 2nd joint also stout; 3rd joint about as long as broad; joints 4—8 scarcely differing from one another, small, each not so broad as long; 9th joint short, a little broader than 8th; 10th distinctly broader than the 9th, very transverse; 11th joint pointed, stout, broader than the 10th joint, and about as long as the three preceding joints together. Maxillary palpi about half the length of the antennæ. Head with the frontal processes flat, elongate, and separated by a distinct channel, which terminates behind in a rather deep impression, formed by two confluent foveæ, which is placed between the eyes. Thorax only about half as broad as the elytra, rather longer than broad, the sides very finely margined, the greatest width in front of the middle, from whence it is much narrowed both in front and behind; it has on each side behind the middle, close to the side margin, a very minute dot or fovea, and there are some faint traces of these being connected by a curved impression; the upper surface of the thorax is peculiarly dull, and on examination by a high power of the microscope, it is seen that this dulness arises from a very fine and dense granular sculpture; the sides of the thorax bear some fine curved hairs, and there are also a few such hairs on its upper surface. Elytra longer than the thorax, a little narrowed at the shoulders, each with a sutural, and a fine curved discoidal stria, and with some fine hairs indistinctly arranged in rows, and at the extremity with some very dense glandular pubescence. Hind body with a sharp raised margin, and bearing scattered fine hairs; its basal segment shining, elongate, and furnished at the base with dense pubescence, the other segments very short. Legs rather short and stout.

West Australia: three specimens collected by Du Boulay.

Tyraphus brevis, n. sp. Antice castaneus, opacus, postice rufo-testaceus, nitidus; prothorace latitudine haud longiore. Long. corp. $1\frac{1}{2}$ mm.

This species, of which I have seen only a single female individual, is very closely allied to the *T. planus*, but is more dilated behind, and has the thorax, and the front part of the head, very evidently shorter; the antennæ are also a trifle shorter, and I have no doubt these characters indicate a distinct species.

West Australia; collected by Du Boulay.

Tyraphus major, n. sp. Antice castaneus, opacus, postice rufo-testaceus, nitidus; oculis magnis, fortiter granulatis; prothorace latitudine longiore. Long. corp. 2 mm.

Antennæ rather stout, quite as long as head and thorax, basal joint stout and rather long; 2nd joint not half so long as the first; joints 3—8 rather stout, differing little from one another; 9 and 10 short, stouter than the preceding joints; 11th quite as long as two preceding joints together, broader than the 10th, pointed at the extremity. Maxillary palpi not half so long as the antennæ. Head with the frontal processes separated by a fine channel, which ends behind in a depression placed behind the eyes, these large and very coarsely faceted. Thorax narrow and rather elongate. The glandular pubescence at the extremity of elytra dense and elongate. The apical four dorsal segments of hind body quite distinct, and, taken together, as long as the first segment.

Champion Bay, W. Australia, collected by Du Boulay; the only specimen I have seen I suspect to be a male, though the metasternum and hind body are not impressed; the species, though closely allied to *T. planus* and *brevis*, is larger, and has more developed antennæ, much larger eyes, and the apical segments of hind body less abbreviated.

Pselaphus mundus, n. sp. Rufescens, minus elongatus, setis brevissimis parce vestitus; vertice brevi, indistincte canaliculato; prothorace minus elongato, impressione basali curvatâ profundâ. Long. corp. $1\frac{3}{4}$ mm.

This species has the head and thorax less elongate than is usual in the genus *Pselaphus*, and in this respect, as

well as in the structure of the maxillary palpi, appears to stand intermediate between *P. lineatus* and *P. clavatus*, King. The antennæ are similar in structure to those of *P. lineatus*, but scarcely so long. The maxillary palpi are moderately long, and the slender basal portion of the terminal joint is not quite so long as the dilated extremity. The eyes are placed close to the back of the head, and the vertex is a little swollen on each side, and has an indistinct channel along its middle; between the eyes is a depression formed by two foveæ, confluent in front, but indistinctly separated behind. The thorax is about as broad as long, and the curved basal impression is entire and very deep and distinct. The elytra are longer than the thorax, and have a sutural, and a fine curved discoidal stria. The upper surface of this species possesses no long curved hairs, but is sprinkled with very fine short depressed ones.

Victoria. The single specimen sent me by H. Edwards, Esq. is, I believe, a female. As I have remarked above, the species appears intermediate between *P. clavatus* and *P. lineatus*; as regards the former of these names, it appears to me highly probable that the var. *Edwardsii* of Mr. King should form a distinct species from the *P. clavatus*; Mr. King gives two figures of the maxillary palpi of *P. clavatus* (without any explanation), and it appears to me that the two figures evidently refer to two different species. I should, perhaps, therefore have been more correct in saying that the *P. mundus* is intermediate between *P. lineatus* and *P. Edwardsii*.

Pselaphus pauper, n. sp. Rufo-castaneus, nitidus; capite medio impressione magnâ; prothorace elongato, impressione basali curvatâ bene distinctâ; elytris striâ discoidali sat profunde impressâ. Long. corp. $2\frac{1}{3}$ mm.

Obs.—*P. lineato* King, peraffinis; prothoracis impressione magis profundâ, ejusque parte basali nitidâ, elytrorumque striâ discoidali bene distinctâ, differt.

Antennæ longer than head and thorax, the 9th joint but little thickened. Head with the channel between the frontal processes rather broad, and terminating between the eyes in a deep impression, which is continued backwards along the vertex. Thorax not more than half the width of the elytra, longer than broad, not much dilated in the middle, in front of the base with a deep curved impression, the part behind this shining like the rest of

the upper surface. Elytra longer than the thorax, much narrowed at the shoulders, each with a sutural, and a very distinct curved discoidal stria; they are quite shining and furnished with a few fine curved hairs. Hind body rather densely set with very fine depressed hairs.

New Zealand (Hokitika). The four specimens of this species sent me by Mr. Edwards, show no characters to distinguish the sexes, and I suppose them to be all females.

Pselaphus tenuis, n. sp. Castaneus, nitidus, angustus, prothorace simplice, latitudine longiore. Long. corp. vix $1\frac{1}{2}$ mm.

Mas, metasterno, medio tuberculis duobus, postice depresso, abdomine segmento 1° ventrali late impresso, apice mutico.

A small and very slender species. Maxillary palpi long and slender, the thick part of the last joint scarcely so long as its slender stalk. Antennæ elongate, slender, the three last joints long, and only a little incrassate. Head with a deep impression between the eyes, the vertex short. Thorax longer than broad, but little dilated in the middle, smooth and shining, without basal impression. Elytra narrow, longer than the thorax, with a sutural, and fine curved discoidal stria.

Victoria. A single specimen received from H. Edwards.

This species, remarkable from its simple thorax, is somewhat allied to the *P. lineatus*, King, but its smaller size and more slender structure, and the shorter vertex, in conjunction with the male characters, render it very distinct.

GERALLUS, nov. gen.

Antennæ 11-articulatæ, apice clavatæ basi modice approximatae. Caput ante antennarum insertionem, sat elongatum, deflexum, oculis lateralibus. Palpi maxillares valde elongati, articulo tertio elongato. Pedes graciles, tarsi unguiculis duobus parvis; intermediis trochanteribus elongatis, femoribus a coxis bene separatis; coxis posticis distantibus, haud prominentibus. Abdomen marginatum, breve. Corpus convexum, antice angustatum.

This genus appears to be allied to both *Tyrus* and *Tychus*, but it has the antennæ more separated at the insertion than either of those genera. It is readily distinguished from *Tyrus* by the elongated maxillary palpi:

its structure appears to be very much that of *Tychus*, but it is distinguished therefrom by the elongate intermediate trochanters, by the double unguiculi, and by the last joint of the maxillary palpi, which though elongate is not securiform. The genus also rather closely approaches *Bythinus*, and indicates in an incontrovertible manner that the position of that genus is near *Tychus*. *Tyrus palpalis* and *Tyrus subulatus*, King, must be referred to the genus *Gerallus*; and for the present also *Tyrus formosus*, King, should be located in the genus, though this latter species is apparently almost as much allied to the *Durbos priscus*. *Bryaxis protervus*, from Japan, appears greatly to approach *Gerallus* in its general structure, so that the affinities of the genus are complex.

Gerallus nanus, n. sp. Dilute bruneus, capite obsolete punctato, inter oculos foveis duabus parvis; thorace basin versus angustato, simplice, vix punctato: elytris sat crebre fortiter punctatis, striâ suturali, impressioneque sat elongatâ intra-humerali. Long. corp. $1\frac{1}{2}$ mm.

Mas, femoribus intermediis margine anteriore medio emarginato; abdomine segmentis ventralibus brevissimis.

Fem., femoribus intermediis simplicibus, abdomine segmentis ventralibus brevibus.

Maxillary palpi not much shorter than the antennæ; 2nd joint with a slender long stalk, its apical portion dilated, oval; 3rd joint oval, but with a short slender basal stalk; 4th joint fusiform. Antennæ longer than head and thorax; the joints 1—8 rather slender; 9th joint considerably larger and broader than its predecessor; 10th slightly broader, and about as long as 9th; 11th joint stout, as long as the two preceding ones together, pointed at the extremity. Head much narrower than the thorax, with the frontal tubercles short, and distinctly but not widely separated, the part in front of the insertion of antennæ rather elongate and deflexed; on each side near the eye is a very small fovea. Thorax convex, small, only about half as broad as the elytra, not so long as broad, much narrowed behind, without foveæ or impressions, and scarcely visibly punctured. Elytra much longer than the thorax, distinctly narrowed at the shoulders, coarsely and moderately closely punctured, each with a fine sutural stria, and a broader impression at the base between this and the shoulder. Legs long and slender.

West Australia; collected by Du Boulay. *Tyrus palpalis*, King, is rather closely allied to this species, but has the head and thorax strongly punctured, and the palpi more slender.

DURBOS, nov. gen.

Antennæ 11-articulatæ, sensim clavatæ, basi sat distantes. Palpi maxillares elongati, articulo 2° basi gracile apice distincte incrassato, 3° elongato, 4° longiore, hoc subovali. Caput breve, oculis ad angulos posticos sitis. Prothorax parvus, simplex. Abdomen sat elongatum, marginatum, segmento 1° dorsali, 2° plus duplo longiore. Trochanteribus intermediis minus elongatis. Coxis posterioribus distantibus; tarsis unguiculis duobus parvis.

This genus in many respects closely approaches *Bryaxis*, but is distinguished therefrom by the elongate maxillary palpi, and the two (minute) claws of the tarsi. It also approaches nearly to *Gerallus*, but has the maxillary palpi less elongate, the antennæ more distant at their insertion, the head less rostrate, and the eyes placed at the hinder angles instead of at the sides; the hind body more elongate. *Tyrus formosus*, King, is however in some of these points intermediate between the two genera.

Durbos priscus, n. sp. Castaneo-testaceus, sat nitidus, fere impunctatus; capite obsolete bifoveolato; thorace parvo, medio ante basin foveolâ minutissimâ; elytris striâ suturali, striâque discoidali ante apicem desinente. Long. corp. $1\frac{2}{3}$ mm.

Antennæ slender, much longer than head and thorax, the basal joint rather long, slightly thicker than the following ones, joints 9—11 forming a long slender club. Head small, but with large prominent eyes, its upper surface flat, with the frontal tubercles very faintly marked, and with two minute foveæ between the eyes. Maxillary palpi pale yellow, nearly half as long as the antennæ. Thorax small, not much more than half as broad as the elytra, not so long as broad, narrowed towards the base, with the front angles rounded. Elytra longer than the thorax, moderately narrowed at the shoulders, each with a fine sutural stria, and also with a very fine discoidal stria which does not extend to the extremity. Hind body with the first dorsal segment shining and impunctate, on each

side near the margin with a short indistinct line or plica. Legs long and slender.

I have seen but a single specimen of this species; it has the metasternum deeply channelled, and may therefore be a male, though I notice no other characters to indicate this. It comes from Champion Bay, W. Australia.

Bryaxis optata, n. sp. Rufescens, abdomine sanguineo, elytris sanguineis, antennis articulis penultimis obscuris; capite vertice foveis duabus, fronte profunde impressâ; thorace utrinque foveolato, foveis lineâ impressâ conjunctis; elytris striâ suturali profundâ, alterâque discoidali ante apicem desinente, epipleuris lineâ profundâ impressâ. Long. corp. $2\frac{1}{3}$ mm.

Mas, abdomine subtus segmentis basalibus abbreviatis, segmento ultimo late depresso basi medio leviter elevato.

Fem. incog.

This species is interesting on account of its resemblance to and real affinity with our European *Bryaxis sanguinea*; it is, however, considerably broader than *B. sanguinea*, and has the antennæ much shorter, their penultimate joints being transverse, and the thorax shows no trace of the central fovea which exists in *B. sanguinea*.

The male characters are quite different from those of *B. sanguinea*.

Victoria: a single specimen sent by Mr. Edwards.

Bryaxis recta, n. sp. Castanea, nitida, setis erectis sat crebre vestita; antennis articulis penultimis nigricantibus, ultimo testaceo; vertice foveis duabus; thorace utrinque foveolato, foveis lineâ curvatâ profundâ conjunctis; elytris striâ suturali, alterâque discoidali ante apicem desinente, epipleuris lineâ profunde impressâ. Long. corp. 2— $2\frac{1}{3}$ mm.

Antennæ moderately long and slender, the 9th joint distinctly broader than the 8th, and transverse; 10th joint broader than the 9th, also transverse. The elytra have the sutural stria deep and well marked; their discoidal stria is fine; it starts from a deep intra-humeral impression, and does not reach the extremity.

This species is closely allied to the *Bryaxis hortensis*, King; and differs chiefly in that the very fine short depressed pubescence of *B. hortensis* is replaced in *B. recta* by rather long, fine, upright hairs. The antennæ also

differ in their colour, and are more thickened at the extremity.

The species is probably common in West Australia, as it has been captured both by Du Boulay and Brewer. The specimens show me no sexual character; they have the metasternum deeply impressed along the middle.

B. hortensis, described by King, from Paramatta, is also found in West Australia.

Bryaxis inflata, n. sp. Pilosa, nitida, rufescens, capite prothoraceque picescentibus; vertice foveis duabus magnis; prothorace basi trifoveolato, foveis lateralibus magnis, sulco curvato profundo conjunctis; elytris abbreviatis, apice utrinque fortiter sinuatis, estriatis; abdomine valde convexo; metasterno brevissimo. Long. corp. $2\frac{1}{2}$ mm.

Mas, abdomine segmento 2° ventrali apice medio leviter emarginato, seg. 4° basi tuberculo parvo, 6° leviter impresso.

Antennæ pilose, rather stout, 5th joint distinctly longer than the contiguous ones; 9th joint hardly broader than the 8th; 10th transverse, nearly twice as broad as the 9th; 11th joint large, a little broader than the 10th, distinctly pointed at the extremity. Apical joints of maxillary palpi stout. The part of the head in front of the antennæ distinctly rostrate; the upper surface of the head with two very large pubescent foveæ between the eyes. Thorax subglobose, in front of the base with a very deep curved impression, terminating on each side in a large fovea, and in its middle impressed with a small and not very distinct fovea. Elytra not longer than the thorax, rounded at the sides and greatly narrowed at the base; convex, without striæ or humeral impression, but emarginate on each side at the extremity. Hind body very convex, all its dorsal segments about equal in length.

Of this very distinct species several specimens have been sent from Auckland, N. Z., by Mr. T. Lawson.

Bryaxis micans, n. sp. Rufescens, nitida, impunctata, setis elongatis, erectis parce vestita; capite fronte depressâ, vertice bifoveolato; prothorace elongato, simplicee; elytris striâ suturali minus distinctâ, discoidali nullâ. Long. corp. $1\frac{3}{4}$ mm.

Mas, antennis articulo 5° magno, intus acuminato, articulis 9—11 distortis; metasterno medio impresso; tro-

chanteribus anterioribus spinâ tenui; abdomine segmento 2° ventrali ante apicem tuberculis duobus, apice setiformibus subito recurvis.

Fem. incog.

♂ Antennæ rather stout, 1st joint elongate, quite as long as the three following joints together, these scarcely differing from one another; 5th joint elongate, inwardly projecting and angulate, joints 9, 10 and 11 forming a distorted club; the 10th joint is broader than the 9th, but has its base cut away on one side, and its apical portion projecting; the 11th joint is large, and it also is irregularly formed, its base being broad and oblique, and the articulation not in the middle but on one side. Head depressed in front, so that the antennal tubercles are distinct, and between the eyes with two distinct foveæ. Thorax narrow and elongate, longer than broad, the sides prominent in the middle, the base margined; on each side, behind the projecting part of the thorax, and obscured by it, there is a not very easily seen fovea. Elytra longer than the thorax, with a fine sutural stria, but otherwise without striæ or depressions. The whole of the upper surface is shining, and impunctate, but bears some long, sparing, fine hairs.

Mr. Edwards has sent me two specimens of this species taken in New Zealand, but with no indication of what part of the islands they were found in.

Bryaxis dispar, n. sp. Piceo-rufa, nitida, setis elongatis tenuissimis parcius vestita; vertice bifoveolato, fronte depressâ; prothorace simplice, latitudine haud longiore; elytris striâ suturali distinctâ, discoidali nullâ. Long. corp. $2\frac{1}{3}$ mm.

Mas, antennis 10-articulatis, articulis duobus ultimis extus concavis; trochanteribus anterioribus spinâ tenui elongatâ armatis; abdomine segmento 2° ventrali ante apicem processibus tenuibus duobus leviter recurvis insigne.

♂ Antennæ longer than head and thorax, 1st joint scarcely so long as the two following together; 5th joint longer, but scarcely stouter than the contiguous ones; 8th joint small, scarcely so large as the 7th; 9th joint large, cut away on one side, so as to leave the apical portion prominent on that side; 11th joint large, much broader in one direction than in the other, and with one of the two broad faces impressed or concave. Head with

the front much depressed in the middle, and the vertex with two large foveæ. Thorax much narrower than the elytra, about as long as broad, the sides dilated a little in front of the middle, and on each side there is an indistinct fovea behind the dilated part. Elytra much longer than the thorax, with a deep and distinct sutural stria, but without other impressions. Legs long, and rather slender.

The whole of the upper surface is shining and impunctate, and bears some long, fine hairs.

I have received five specimens, all males, of this species, —taken at Auckland, New Zealand, —from Mr. Edwards.

Besides the five males, I have also received from Mr. Edwards a single female, which I suspect strongly is the female of *B. micans*. It resembles the ♂ *B. micans* exactly in size, colour and facies, but differs therefrom in the absence of the spines on the trochanters and abdomen, and by its unimpressed metasternum; its head is a little smaller, and the frontal depression less, and the vertical foveæ are much smaller. But the most striking character that distinguishes it is that the antennæ are 11-jointed, the 9th joint being intermediate in size between the 8th and 10th joints; the 10th and 11th joints are smaller than in the ♂, and without any excavations. A comparison of the antennæ of the two sexes renders it evident that it is the 9th joint that has disappeared in the male sex, and, on examination, I feel pretty clear that the disparity has arisen by the complete anchylosis of the 9th and 10th joints of the male antennæ.

Bryaxis deformis, n. sp. (♀). Rufescens, nitida, setis elongatis tenuissimis parcius vestita; capite quadrifoveolato (foveis frontalibus antice minus discretis); prothorace simplice; elytris striâ suturali profundâ, discoidali nullâ; pedibus quatuor anterioribus deformibus (tibiis extus curvatis). Long. corp. 2 mm.

This species closely resembles the ♀ of *B. dispar*, but has the antennæ shorter and stouter, and has two foveæ in the frontal depression, which appear quite distinct and separate when viewed from above, but less so when looked at from the front. The four front tibiæ are extremely remarkable, as from the middle to the extremity they are much bent outwards; this form is so remarkable that I at first supposed the legs were deformed, but after a careful

examination I have concluded that it is more probably natural. Except for the characters mentioned above, the insect closely resembles the ♀ *B. dispar*.

A single individual has been sent me by Mr. Edwards from New Zealand, but with no more special locality indicated.

Bryaxis impar, n. sp. Rufescens, nitida, glabra, vertice bifoveolato; clypeo antice transversim impresso; elytris striâ suturali minus profundâ. Long. corp. $1\frac{1}{2}$ mm.

Mas, antennis 10-articulatis, art. 9° maximo; metasterno late sed parum profunde impresso; abdomine segmento basali ventrali apice bituberculato.

Fem., antennis 11-articulatis, art. 9°, 10°que transversis; metasterno abdomineque simplicibus.

Antennæ stout and short (except for the two terminal joints in the male); the basal joint short, its visible part not longer than the 2nd joint; the 9th joint in the male excessively developed, longer than broad, and on the inside it is a little cut away at the extremity, and the 10th joint in the same sex is only about half the bulk of the 9th; in the female the 7th and 8th joints are extremely small; the 9th joint is also very short, but much broader than the 8th; and the 10th joint, which is also short and very transverse, is considerably broader than the 9th, the 11th joint being comparatively large. The head is smooth and shining; it has in the frontal depression two indistinct foveæ, and the vertex has also two very small foveæ. The thorax is about as long as broad, smooth and shining, without impressions or foveæ.

The elytra are very elongate, quite smooth and shining, and show only on each a single fine sutural stria. The hind body is very short and deflexed; the legs are slender.

This little species was collected at Auckland, by Mr. T. Lawson.

Bryaxis grata, n. sp. Rufescens, nitida, fere glabra; antennæ in utroque sexu 11-articulatæ, articulis penultimis parvis; clypeo antice æquali haud impresso; prothorace ante basin lineâ curvatâ impressâ, medio desinente; elytris striâ suturali distinctâ, plicâque intra-humerali obsoletâ; capite subtus medio lineâ longitudinali elevatâ valde discretâ; pedibus minus elongatis. Long. corp. $1\frac{2}{3}$ mm. (vix).

Mas, vertice bifoveolato; metasterno late impresso;

abdomine segmento 2°, 6°que transversim foveolatis (segmento 5° medio omnino carente).

Femina, vertice æquali; metasterno abdomineque haud impressis.

Antennæ (only differing in the sexes in that those of the male are slightly longer than those of the female) with the first joint short, its visible part about as long as the 2nd joint; 3rd joint more slender than and about as long as the 2nd joint; joints 4—10 bead-like, the 10th differing but little from the others; 11th joint abruptly larger, obtusely pointed. Thorax about as long as broad, smooth and shining, without foveæ but immediately in front of the base transversely depressed, the depression leaving, however, the middle untouched. Elytra elongate, nearly twice as long as the thorax, each with a well-marked sutural stria, and an indistinct intra-humeral impression. Hind body very short.

This species was sent me from New Zealand by Mr. Edwards, but without any special locality.

Bryaxis spreta, n. sp. Nitida, picea, elytris sanguineis, antennis pedibusque flavescens, setis erectis parce adspersa; vertice obsolete bifoveolato; prothorace æquali; elytris striâ suturali distinctâ; antennæ in utroque sexu 11-articulatæ. Long. corp. $1\frac{1}{3}$ mm.

Mas, antennis articulo 5° contiguus longiore latioreque, articulis 9 et 10 transversis; metasterno prominente medio profunde sulcato; abdomine segmento 2° ventrali apice medio tuberculo parvo subtriangulâri vix elevato impressione circumvallato.

Fem., antennis articulo 5° contiguus longiore sed vix latiore, articulo 9° subquadrato præcedente paulo majore, 10° transverso; metasterno apice impresso; abdomine mutico.

Antennæ slender; the exposed portion of the first joint about as long as the second. Head very smooth and shining, with the two foveæ on the vertex very small; the frontal tubercles very slightly elevated, and the space between them very little depressed. Thorax very small, scarcely so long as broad, very smooth and shining, without foveæ or impressions. Elytra twice as long as the thorax, with a deep sutural stria. Hind body very short; legs slender.

I have received several specimens of this species from Mr. Edwards; taken by him in Victoria, Australia.

Bryaxis concolor, n. sp. Castaneo-testacea, nitida, setulis brevibus parce adspersa; capite vertice obsolete bifoveolato; prothorace parvo, æquali; elytris striâ suturali, intra humerum basi impressisque. Long. corp. 1 mm.

Mas, antennæ 11-articulatæ, articulo nono parvo, transverso intus paulo producto, art. 10 et 11 magnis; metasterno late profundeque impresso; abdomine segmento 2° ventrali apice medio tuberculo parvo, segmento 6° foveâ magnâ.

Femina incognita.

Antennæ short; the two basal joints short; joints 3—9 particularly short; the 9th joint very short, but with its inner side a little produced, so that it is distinctly transverse; 10th joint large, considerably narrower at the base than at the extremity, so as to have somewhat a triangular appearance; 11th joint large, of the same width as the 10th, distinctly acuminate at the extremity. Head with the frontal tubercles extremely indistinct, the vertex with two very small foveæ. Thorax small, without foveæ or impressions. Elytra elongate, twice as long as the thorax, with a well-marked sutural stria, and with the shoulder a little elevated, so that there is a kind of depression at the extreme base inside the shoulder. Hind body extremely short and deflexed. Legs slender and rather elongate.

Victoria. Two ♂ individuals sent by Mr. Edwards.

Bryaxis plecta, n. sp. Angustula, castanea, nitida; oculis parvis, minus convexis; antennæ breviusculæ, articulo decimo fortiter transverso, 11° magno; capite vertice obsolete bifoveolato; prothorace parvo, æquali; elytris elongatis parcius obsolete punctatis, striâ suturali profundâ, humeris leviter prominulis: pedibus posterioribus elongatis, gracilibus. Long. corp. 1 mm.

Antennæ shorter than head and thorax; 1st and 2nd joints short; joints 3—9 very small, the 9th broader, however, than the preceding ones and distinctly transverse; 10th joint short, twice as broad as the 9th joint, strongly transverse; 11th joint very large, pointed at the extremity, broader than the 10th joint. Head convex, smooth and shining, the frontal tubercles absent, the vertex with two

very small foveæ. Thorax small, about as long as broad, a good deal narrowed behind, convex, smooth and shining. Elytra very long, about twice as long as the thorax, with traces of a sparing and obsolete punctuation, with a deep and distinct sutural stria, and with the shoulders a little prominent. Hind body very short, but with the basal dorsal segment notably longer than the succeeding one.

Victoria (Edwards). Though I have seen but a single specimen of this minute little species, I have no hesitation in describing it, as the above characters will pretty certainly lead to its recognition. It is of special interest, as some of the above-mentioned characters indicate that it has a considerable affinity with *Euplectus* and *Trimum*. The individual shows no peculiar abdominal characters, so that I cannot say whether it be ♂ or ♀.

Bryaxis sulcata, n. sp. Castanea, nitida, setis erectis parce vestita; vertice foveolis duabus parvis; thorace brevi, sub-cordato, æquali; clytris striâ suturali distinctâ, intraque humerum basi impresso. Long. corp. $1\frac{1}{3}$ — $1\frac{1}{2}$ mm.

N.B.—In utroque sexu metasternum muticum, et antennæ 11-articulatæ.

Mas, antennis articulo 5° contiguis longiore latioreque, art. 10° transverso, intus producto; abdomine segmento 2° ventrali medio tuberculo longitudinali elongato.

Femina, antennis articulo 5° contiguis longiore, art. 10° simpliciter transverso.

Antennæ about as long as head and thorax, rather slender, the two basal joints slightly elongate, the 9th distinctly a little broader than its predecessors, the 10th distinctly transverse, the 11th joint moderately large. Head a little depressed between the frontal tubercles, which are but little elevated, and with two small foveæ on the vertex. Thorax small, not so long as broad, the sides much rounded in front and a good deal narrowed behind. Elytra rather long and convex, not twice as long as the thorax, with the sutural stria distinct, and with an indistinct impression at the base on the inside of the shoulder.

West Australia; collected by Du Boulay. I have, moreover, in my collection two individuals sent by Mr. Brewer from Swan River, which perhaps belong to a very closely-allied but distinct species; they appear to have the antennæ a little longer, and frontal tubercles and foveæ more distinct; until the male is known to me, I cannot say whether they are a distinct species or not.

Bryaxis euplectodes, n. sp. Castanea, angustula; capite plano, tuberculis frontalibus nullis; prothorace simplice, brevi; elytris striâ suturali, striâque discoidali, basi profunde impressâ sed apicem haud attingente; abdomine segmento basali elongato. Long. corp. (ultra) 1 mm.

Mas, abdomine segmento ventrali basali fossâ profundâ, fundo subtiliter striatâ, apice carinâ elevatâ transversâ terminatâ, per totam longitudinem impresso.

Antennæ rather longer than head and thorax; 1st and 2nd joints about equal in length and thickness; joints 3—9 slender; 5th joint slightly longer than the contiguous ones; 10th joint short and transverse, twice as broad as the 9th; 11th joint large, broader than the 10th joint, and three or four times as long as it. Head with the upper surface quite flat and free from impressions, the summit of the vertex slightly depressed in the middle. Thorax broad and short, but a good deal narrower than the elytra, a good deal narrowed behind, with a slight longitudinal impression in the middle in front of the base. Elytra more than one and a half times as long as the thorax; the after-body narrow and parallel. The legs rather long and moderately stout.

A very remarkable species, with great resemblance in form to *Trimium* and *Euplectus*.

I have but a single specimen captured by Du Boulay in West Australia.

DALMA, nov. gen.

Corpus sat elongatum, subdepressum. Palpi maxillares breves, articulo 2° basi gracile, apice abrupte fortiter incrassato, articulo 3° parvo subtriangulare, articulo ultimo crasso, securiforme-ovali, longitudine articuli 2ⁱ. Caput mediocre, nullo modo rostrato-deflexum, tuberculis frontalibus evidentis, sat distantibus. Antennæ breviusculæ, apice fortiter clavatæ, 11-articulatæ, basi distantes. Prothorax cordatus. Prosternum magnum; coxæ anteriores robustæ modice exsertæ. Trochanteres intermedii breves, ut femoris apex cum coxa articula est. Coxæ posteriores prominentes basi fere contiguæ. Abdomen sat elongatum, minus deflexum, marginatum, segmentis ventralibus sex, quorum primo vix conspicuo. Pedes robusti modice elongati, tarsis unguiculo unico valido.

This is a genus of considerable interest, for it indicates, in a clear manner, that the position assigned by Leconte

to the genus *Batrisus* is the correct one, viz., at the end of the true *Pselaphini*, so as to be near the *Euplectini*. The genus is indeed quite intermediate between the two genera, *Batrisus* and *Euplectus*, and seems to me to indicate that the division of the *Pselaphidæ* into two main groups, *Pselaphini* and *Euplectini*, can scarcely be maintained.

Dalma pubescens, n. sp. Obscure rufescens, nitidus sed pubescentia (præsertim in abdomine) obtectus; prothorace ante basin transversim impresso trifoveolatoque, medio antice minus profunde, lateribus utrinque profunde canaliculatis; elytris striâ suturali latâ et profundâ, basi que profunde bi-impressis. Long. corp. $2\frac{1}{2}$ mm.; lat. elytrorum fere 1 mm.

Mas, antennarum articulo nono maximo (undecimo paulo majore) intus apice foveâ magnâ impresso.

Fem., ant. articulo nono præcedente paulo majore.

Antennæ stout in the male, moderate in the female, about as long as head and thorax, basal joint only a little elongate; 2nd joint stout, bead-like, about as long as broad; joints 3—6 short, bead-like; joints 7 and 8 in the male short and very transverse, in the female scarcely differing from the preceding joints; 9th joint in the female broader but scarcely longer than the 8th, in the male extremely large, subquadrate and impressed on the inner side at the extremity; 10th joint short and transverse in both sexes; 11th joint stout, obtusely pointed, moderately long, in the male slightly stouter than in the female. Head rather small (smaller in the female than in the male sex), considerably narrower than the thorax, the frontal tubercles quite distinct, short, flattened and shining, rather widely separated; the vertex is elevated, and on each side has a fovea confluent in front with a frontal depression, so that the vertex portion of the head forms a triangle projecting into a large frontal depression. The thorax is narrower than the elytra, not so long as broad, the sides rounded in front and considerably narrowed behind; in front of the base is a deep transverse impression, which commences on each side in a large fovea, from which there proceeds forwards a longitudinal impression; on the middle of the transverse basal impression is placed a very large fovea or depression, from which a moderately distinct channel proceeds forwards, but does not reach the front of the thorax; the

thorax is not punctured. The elytra are longer than the thorax and are redder than the rest of the surface; they are impunctate, but each has a very distinct sutural stria, and outside this they are rather deeply impressed, the impression between divided into two by a well-marked, raised, longitudinal fold. The whole surface is covered with a fine yellowish pubescence, which is more distinct on the hind body than elsewhere.

Hokatika, New Zealand: 2♂, 1♀ sent by Mr. Edwards.

SAGOLA, n. gen.

Labrum broad and transverse, its front margin forming a gentle curve, the sides being more advanced than the middle. Mandibles without teeth on their inner edge, with the basal portion very thick; the apical portion abruptly curved inwards, elongate, slender and acuminate. Maxillæ with the lobes distinct, short but with long pubescence; their palpi short, 4-jointed, 1st joint abruptly curved in the middle; 2nd joint rather longer than 1st, rather narrower at the base than at the extremity, twice as long as broad; 3rd joint short, about as long as broad; 4th joint oval, broader than the preceding joints, about twice as long as broad, its extremity a little truncate, and furnished with a very minute appendage. Mentum large, rather broader than long, quadrate, but with the anterior margin forming a slight double curve, being a little produced and acuminate in the middle. Labial palpi short, stout, 2-jointed; 2nd joint shorter than, and not quite so thick as the 1st joint. Paraglossæ prominent, extending about as far as the extremity of the labial palpi.

Antennæ 11-jointed, elongate and rather stout, not clubbed, the apical joints being but little thicker than the basal ones, separated at their point of insertion by the broad, flattened, contiguous, frontal tubercles. Head short, not in the least rostrate. Eyes moderately large. Prosternum rather large, front coxæ slender, moderately prominent. Mesosternum elongate. Middle coxæ large, only partly embedded in their cavities, separated only by a thin lamina of the mesosternum. Femoral portion of hind coxæ prominent and conical, contiguous at their base; their trochanters moderately large, but the apex of the femur almost attains the coxa. Legs elongate, simple; tarsi much shorter than tibiæ, with two well-developed unguiculi. Hind body elongate, strongly margined at sides, the dorsal and

ventral plates equal to one another, with five visible segments both above and below, but with a well-developed additional basal segment visible on dissection, the ventral plate of which is horny, the dorsal plate membranous.

Body pubescent, general form elongate, subdepressed, very *Staphylinus*-like. This genus appears to be extremely close to *Faronus*, but the species possess a well-marked process of mesosternum separating the middle coxæ, of which there is no trace in *Faronus Lafertei*: the frontal tubercles also are more approximate in *Sagola*, so that the distance between the antennæ at their insertion is less than in *Faronus Lafertei*.

Sagola major, n. sp. Rufescens, nitida, elytris rufis; prothorace transversim cordato; capite lato, angulis posterioribus leviter dilatatis. Long. corp. $2\frac{1}{2}$ mm.

Mas, trochanteribus anticis prominulis acutis; abdomine segmento 6° ventrali tuberculis duobus elevatis.

Fem. incog.

This species differs from *S. prisca* by its much broader form, by its more slender antennæ, the basal joint in particular of these organs being notably more slender, and by the more deflexed extremity of the hind body, as well as by the different characters of the male. The first visible dorsal segment of the hind body possesses a transverse band of glandular pubescence, which is wanting in the other species here described.

I have seen but a single specimen of the species; it was sent to me from New Zealand by Mr. Edwards.

Sagola prisca, n. sp. Obscure rufa, elytris sanguineis, capite thoraceque parce, longius, abdomine dense pubescentibus; antennis crassiusculis, articulis quatuor penultimis leviter transversis; capite angulis posterioribus rotundatis. Long. corp. $2\frac{1}{2}$ mm.

Mas, abdomine segmentis 3°, 4°que apice tuberculis duobus elongatis, 5° transversim depresso, apice emarginato.

Antennæ with the first joint stout and elongate, 2nd joint small, subglobular; 3rd joint similar in shape to 2nd but still smaller than it; joints 4—10 differing little from one another; 11th joint hardly as broad as the 10th, but a little longer than it, obtusely pointed. Head small and

short, with two small foveæ on the vertex, and with a fine channel separating the short flattened frontal tubercles, this channel expanding a little behind, so as to appear as if it terminated in a very small fovea. Thorax subcordate, with a large quadrate impression on the disc behind the middle, and close to each hind angle of this a very small fovea, and with a larger fovea on each side. Elytra about one and a-half times as long as the thorax, a little narrowed towards the shoulders, each with a sutural stria, which towards the base is very deeply impressed, and between this and the shoulder with a coarse elongate impression; this impression appears to be nearly divided into two near its base. The hind body is broad and its exposed portion is slightly longer than the elytra.

Several specimens of this species have been sent me by Mr. Edwards; they come from New Zealand.

Sagola misella, n. sp. Obscure rufa, elytris sanguineis; antennis articulis penultimis vix transversis; elytris abdomine multo brevioribus. Long. corp. $2\frac{1}{2}$ mm.

Mas, a femina notis sexualibus externis vix distinguendus.

This species is very closely allied to *S. prisca*, but is readily distinguished therefrom, by its much shorter elytra and metasternum; its antennæ are also more slender, and their 5th joint is notably thinner: the hind body is broader towards the extremity: and the remarkably conspicuous male characters of *S. prisca* are in *S. misella* entirely wanting.

About two dozen specimens of this species have been sent by Mr. Edwards from New Zealand. It is from a dissected specimen of this species that the generic characters of the genus have been drawn.

Sagola parva, n. sp. Corpore antice fortiter angustato. Obscure rufa, elytris sanguineis; antennis sat gracilibus, articulis penultimis vix transversis; prothorace elongato, latitudine fere longiore; elytris abbreviatis, abdomine multo brevioribus, prothorace vix longioribus. Long. corp. $2\frac{1}{3}$ mm.

Very closely allied to *S. misella*, but with the head and thorax narrower, and the elytra a little shorter than in that species; the antennæ also are rather less developed than in *S. misella*, being both a little shorter and more slender.

A single specimen, sent me by Mr. Edwards from New Zealand, is all I have seen of this species. It is possible it may prove to be an extreme form of *S. misella*: but I think it more probable it is a distinct species.

Euplectus convexus, n. sp. Rufescens, pube brevi depressâ dense vestitus; fronte profunde bisulcatâ; prothorace angustulo, basin versus impressionibus tribus magnis; elytris striâ suturali basi profunde impressâ; impressioneque intra-humerali bene distinctâ; antennis articulo ultimo acuminato. Long. corp. $2\frac{1}{3}$ mm.

Mas, pedibus omnibus incrassatis, tibiis posterioribus intus angulatis.

Antennæ shorter than head and thorax, 2nd joint not so long as 1st; joints 3—9 bead-like, differing little from one another, except that the 9th is a little broader than the others; 10th joint short, rather strongly transverse, about twice as broad as 9th; 11th joint large, broader than the 10th. Head rather long and narrow, very deeply impressed between the frontal tubercles; from each side of the impression proceeds backwards a deep furrow, which terminates between the eyes as a fovea-like expansion. Thorax much narrower than the elytra, about as long as broad, much narrowed behind, with a very large impression behind the middle, which is connected on each side with a deep large fovea near the hind angles. Elytra distinctly longer than the thorax, with the sutural stria deeply impressed at the base, and with a rather large intra-humeral impression.

Auckland, New Zealand. The male sent by Mr. Edwards, the female by Mr. Lawson.

Euplectus opacus, n. sp. Rufescens, opacus, pube brevissimâ densius vestitus; antennæ breves; capite parvo, transversim impresso; prothorace basin versus impresso, disco canaliculato; elytris striâ suturali, alterâque subtili, discidali, abbreviatâ, basi profunde impressis. Long. corp. $1\frac{1}{3}$ mm.

Antennæ shorter than head and thorax, 2nd joint a little shorter than 1st, subglobose; joints 3—8 very small; 9th joint broader than its predecessors, transverse; 10th joint broader than 9th, strongly transverse; 11th joint stout. Head very short, a large portion of its upper surface occupied by a curved or angulated transverse impres-

sion. Thorax short, not so long as broad; in front of the base it has a deep curved impression, which is indistinctly expanded in the middle and on each side, and in front of this there is a longitudinal impression on the disc. Elytra longer than the thorax, with a distinct sutural stria and a fine abbreviated discoidal stria, these striæ being deeply impressed or foveolate at their commencement. Legs rather short.

Auckland. A single specimen (probably a female), sent by Mr. Lawson.

Articerus Westwoodi, n. sp. Rufo-ferrugineus, antice fortiter punctatus; antennis capite paulo longioribus, latis, basi gracilibus; prothorace subquadrato, dorso impresso. Long. corp. $1\frac{1}{3}$ — $1\frac{1}{2}$ mm.

Mas, antennis extus paulo magis dilatatis; tibiis anterioribus basi gracilibus, apicem versus leviter dilatatis, extus curvatis, intus infra medium vix visibilibus angulatis; tibiis intermediis extus medio spinâ parvâ, intus apice unco valido; posterioribus apicem versus leviter dilatatis; abdomine breviori, apice abrupte deflexo, pygidio apice summo foveolato, segmento primo basali brevi, apice, cumque segmentis sequentibus, medio impresso; metasterno medio apicem versus prominulo.

The inner margin of the antennæ is nearly straight in the female, but a little concave in the male, and the apex is broad and truncate, so that its two angles are right angles in the female, while in the male the inner angle is acute, the outer a little obtuse. The thorax is rather longer than broad, very nearly straight at the sides, and has along the middle a broad deep impression.

West Australia: five specimens collected by Mr. Du Boulay.

I judge from description that this species is allied to *A. curvicornis*, Westwood, but as it is smaller, and does not quite agree with Westwood's description of the antennæ, and the ♂ characters, and as it comes from a different locality, I have no doubt it will prove a distinct species.

Articerus tumidus, n. sp. Rufo-ferrugineus, antice fortiter punctatus, elytris eviderter setulosis; antennis brevibus, capite paulo longioribus, intus extusque similiter rotundatis; prothorace quadrato, dorso foveolato. Long. corp. $1\frac{1}{3}$ mm.

Mas, pedibus intermediis tumidis; metasterno prominulo, medio ciliato; abdomine segmento basali ventrali medio fortiter transversim constricto-depresso, foveolâque parvâ; pygidio apice impresso.

The short antennæ are a little longer than the short head; they are slender at the base, much thickened in the middle, the truncate extremity not quite so broad as the middle. The punctuation of the front parts of the body is coarse and close, coarser in the female than in the male; the thorax is small, about as long as broad, the sides straight in the female, very slightly narrowed behind in the male. The legs are short. The intermediate legs in the male are enormously swollen, the thighs being short and extremely thick, their basal portion produced downwards; the tibiæ broad and extremely short, and capable of being accurately adapted to the under surface of the femur.

West Australia: five specimens, collected by Mr. Du Boulay.

Articerus Pascoeus, n. sp. Flavo-ferrugineus, antice fortiter punctatus, elytris evidenter setulosis, antennis brevibus, capite paulo longioribus, intus extusque similiter rotundatis; prothorace parvo, quadrato, dorso foveolato. Long. corp. $1\frac{1}{3}$ mm.

Mas, tibiis anterioribus apice calcari armatis, tibiis intermediis extus infra medium angulatis, intus apice unco acuminato; posterioribus apicem versus leviter dilatatis; abdomine apice fortiter deflexo; metasterno medio apice penicillo parvo.

The short antennæ have a slender basal portion, and beyond this are dilated into an oval form, but with the extremity truncate; the base of this oval is thin and laminate, and its surface is impressed. The head is short, being scarcely longer than the thorax, but the eyes are placed at a little distance from its hind part. The thorax is small and narrow, and about only half as broad as the elytra, quite as long as broad. The elytra are much narrower at the shoulders than at the apex.

Found in West Australia by Du Boulay.

In the male of this species the calcar at the extremity of the front tibiæ is easily overlooked, as it is placed behind the tarsus.

I have named this species in honour of Mr. F. P. Pascoe,

who has contributed to our knowledge of the genus by the description of two new species belonging to it.

Articerus brevipes, n. sp. ♀. Rufo-ferrugineus, crebre subtiliter punctatus, subopacus, brevissime setulosus; antennis brevibus, truncato-ovalibus, latitudine vix duplo longioribus; capite perbrevis; prothorace brevi, transverso, basin versus leviter angustato, pone medium impresso. Long. corp. $1\frac{1}{3}$ mm.

Antennæ about as long as the head, forming an oval, with an extremely short stalk; the base of the oval is laminate, and its surface impressed, and the truncate apex seen from the front is circular. The head is very short, and the eyes are placed quite close to the hind part; the portion in front of the eyes is not so long as broad. The thorax is in length considerably less than in width, and is distinctly narrowed behind; it is dull and opaque, its punctuation indistinct, and it has an impression behind the middle. The elytra are broad and short, a little narrowed at the shoulders, their punctuation indistinct, and the setæ even at the extremity very short and depressed. The impression at the base of the hind body is transverse, deep and well defined, the tuft of pubescence on each side of it very small; it is impunctate, and is furnished towards the extremity with a few very short erect setæ. The legs are slender and very short. The sternum is shining in the middle, closely but obsoletely punctured at the sides.

Though I have seen but a single female individual of this species I have described it, as I believe it will readily be recognized from the above characters.

This individual was captured in W. Australia by Mr. Du Boulay, probably at Champion Bay.

Articerus Kingius, n. sp. Rufo-ferrugineus, postice latior; capite thoraceque fortiter punctatis; capite modice elongato, antennis cylindricis apicem versus incrassatis, apice truncato; elytris minus evidenter punctatis, nitidulis, evidenter setulosis. Long. corp. $1\frac{1}{2}$ — $1\frac{2}{3}$ mm.

Mas, antennis capite evidenter longioribus, tibiis anterioribus postice basi excepto laminato-dilatatis, intermediis latis, extus rotundatis, supra medium ciliatis, intus apice unco acuto armatis; abdomine apice deflexo; metasterno valde prominulo.

Fem., antennis capite paulo longioribus.

The antennæ are not compressed, but are slender at their base and gradually thickened to the abruptly truncate extremity. The eyes are placed at a distance from the back of the head. The thorax is transverse, being distinctly broader than long, slightly narrower in front than behind, and it has a large fovea-like impression in front of the base. The elytra are reddish, their punctuation well marked only at the base. The hind body is furnished with rather numerous and long erect setæ.

West Australia; one specimen of each sex collected by Mr. Du Boulay. I have named this species after Mr. R. L. King of Paramatta, who has described a considerable number of species of Australian *Pselaphidæ*.

Articerus gibbulus, n. sp. ♂ Rufescens, antennis cylindricis apicem versus incrassatis, apice truncato; capite elongato, sat fortiter punctato; prothorace transversim quadrato, ante basin impresso; elytris flavescens, nitidulis, basi summo solo evidenter punctato. Long. corp. 2 mm.

Mas, tibiis intermediis apice intus unco acuminato armatis; propygidio magno transverso, pygidio valde inflexo, nitidulo, impresso; metasterno valde acuminato-prominulo.

Fem. incog.

The antennæ are moderately long, distinctly longer than the head, slender at the base, rather stout at the abruptly truncate extremity. The head is long, the eyes placed at a considerable distance from its hind part. The thorax is a little broader than long, very slightly narrowed and rounded at the front angles. The setæ of the upper surface are very short and fine and sparing, and the surface is therefore more shining than in the other species here described. The extremely prominent metasternum is remarkable.

W. Australia (probably Champion Bay); a single specimen, collected by Du Boulay.

Articerus spinifer, n. sp. ♂ Rufescens, antennis elongatis ante apicem tortis, apice truncato; capite sat elongato; prothorace transverso, dorso late impresso; elytris crebre subtiliter punctulatis; abdomine setis erectis bene distinctis, depressione basali profundâ, fundo glanduloso pubescente. Long. corp. fere 2 mm.

Mas, pedibus intermediis trochanteribus longe ciliatis,

femoribus summo basi spinâ elongatâ armatis; metasterno apice depresso; abdomine segmentis ventralibus medio deplanatis.

Fem. incog.

Antennæ longer than head and thorax, slender till near the extremity, then thickened and as it were twisted. Head only moderately long, densely punctured, opaque, the eyes small and placed at a distance from the hind part. Thorax rather strongly transverse, the disc impressed, and in the middle of the impression with an indistinct shining fovea-like space. Elytra indistinctly punctured, clothed with very fine and very short depressed setæ, which are not more numerous at the apex than elsewhere. Hind body with the basal depression deep, at its bottom are two large patches of glandular pubescence; posterior part of hind body with numerous elongate erect setæ.

N. W. Australia. A single individual of this very distinct species (collected by Du Boulay) is all I have seen. The structure of its antennæ approaches that of *A. Duboulayi*, from which species however its elongate, slender, and uncompressed tibiæ abundantly distinguish it.

Articerus Deyrollei, n. sp. Ferrugineus, dense subtiliter punctatus, opacus; antennis capitique thoracisque fere longitudine, extus fere rectis, apice intus incrassatis; prothorace oblongo quadrato, basi leviter impresso; abdomine crebre punctulato, setis elongatis, erectis, tenuissimis parce adperso. Long. corp. $1\frac{1}{2}$ mm.

Mas, tibiis anterioribus intus infra medium spinâ minutâ, intermediis intus paulo ante apicem dente acuto; abdomine apice deflexo.

Head rather long, the eyes not prominent, placed at a distance from the back. Thorax rather longer than broad, quite straight at the sides, densely and rather finely punctured, in front of the base with a longitudinal depression which is not very well defined. Elytra finely and rather closely punctured, their pubescence very fine, short and depressed. Hind body elongate, with a rather elongate basal impression, which is without patches of pubescence; it is very finely punctured, so that it is not at all shining. The tibiæ are compressed in both sexes.

The species is allied to *A. Duboulayi*, but it is much smaller; the basal portion of the antennæ is not so slender, the thickening at the extremity therefore not so abrupt. The elongate abdominal setæ of *A. Deyrollei* afford a

character by which it can be distinguished from *A. Duboulayi*, as does also the want of the lateral patches of pubescence. The sexual characters of the male are less striking; the angulation of the front tibiæ inwardly appears either as a small angular projection, or as an emargination of the lower part, according to the point it is viewed from. A pair of this species was given me four or five years ago by M. Henri Deyrolle, after whom I have named it. I have no locality for the species but "Australia."

SCYDMÆNIDÆ.

Scydmanus optatus, n. sp. Elongatus, angustulus, brunneus, vix punctatus, sed pube suberectâ elongatâ sat dense vestitus; oculis minutis; palpis maxillaribus articulo ultimo gracili; antennis tenuibus, elongatis, articulis nullis transversis; pygidio nudo; abdomine segmento quinto ventrali medio haud distinguendo; carinâ mesosternali elongatâ sat alte elevatâ; trochanteribus posterioribus femorum longitudinis dimidio. Long. corp. 2 mm.

Mas, tarsi anterioribus basi vix dilatatis, subtus longius pilosis.

Antennæ slender and elongate, longer than head and thorax, the 9th joint slender and elongate, nearly three times as long as the 8th joint; 10th joint nearly as long as 9th and twice as broad as it; 11th joint elongate, pointed, oval, longer and a little broader than 10th. The maxillary palpi are elongate, the 3rd joint elongate, slender and but little longer than the preceding one; 4th joint invisible. Thorax longer than broad, its greatest breadth in front of the middle, thence distinctly narrowed to the base; it has no basal impressions. Elytra slender and rather elongate, without impressions or plicæ. Legs long and slender. The carina separating the middle legs is quite thin, and is continued along the elongate mesosternum, which has a large impression on each side the carina, to accommodate the front coxæ.

West Australia; collected by Du Boulay. I have only a single pair.

Scydmanus Edwardsi, n. sp. Elongatus, angustus; piceo-rufus, nitidus, pube suberectâ parcius vestitus; oculis mediocribus; antennis elongatis, gracilibus; palpis articulo ultimo gracili; pygidio nudo; carinâ mesosternali fere de-

ficiente; abdomine segmento quinto ventrali elongato. Long. corp. $2\frac{2}{3}$ mm.

Mas, tarsi anterioribus subtus longius pilosis, articulo basali vix dilatato.

Of remarkably elongate form. Antennæ about as long as head and thorax, with all the joints elongate, the 8th slightly shorter than 7th; 9th and 10th joints very similar to one another, twice as broad as the 8th joint, each a little longer than broad; 11th joint about as broad as the 10th and a little longer than it, obtusely pointed. Head elongate and narrow, a little narrower than the thorax, the eyes placed at the front part of the sides. Thorax long and narrow, about twice as long as broad, its greatest breadth a little in front of the middle. Elytra without impressions or plicæ. The intermediate coxæ separated by a raised thin lamina, which however is not continued along the mesosternum. The metasternum is remarkably elongate. The legs are very long and slender. The underside of the head has at the base a deep fovea. The 3rd joint of maxillary palpi elongate and slender, but little thicker than the 2nd; 4th joint invisible.

Of this remarkable species a single specimen has been sent me by Mr. Edwards from New Zealand. Being indebted to him for a number of the species described in this paper, I have great pleasure in naming this conspicuous species in honour of him.

Phagonophana setosa, n. sp. Rufa, densius (elytris longius) setosa; antennis crassiusculis, articulis 4 ultimis leviter incrassatis; vertice gibboso; prothorace basi utrinque bifoveolato, foveolâ externâ parvâ; elytris intra humeros impressis. Long. corp. $2\frac{1}{4}$ mm.

Antennæ about as long as head and thorax, slightly thickened towards the extremity; 1st and 2nd joints stout, 2nd nearly as long as the 1st, 3rd joint quadrate, 6th slightly smaller than the contiguous joints, 8—11 slightly stouter than the others, 8—10 a little transverse, 11th joint longer than 10th, obtusely pointed; all the joints with elongate distinct setæ. Head apparently impunctate, but clothed with a dense rough pubescence, the front depressed, the vertex convex, the eyes small but prominent. Thorax longer than broad, moderately narrowed behind, clothed like the head with rough pubescence; the base has on each side two foveæ, which are concealed by the pubes-

cence, and of which the outer one is small. The elytra are a good deal rounded at the sides, the suture a little depressed at the base, and on each side, inside the humeral angle, is a distinct depression; they are clothed with elongate, upright pubescence. The mesosternum has a strongly elevated carina, which projects backwards a little between the middle coxæ; the metasternum is rather long, quite unimpressed, clothed like the abdomen with short distinct pubescence. The front tibiæ are a little sinuate, their inner margin, in its lower half, rather densely pubescent.

Five specimens of this interesting insect have been sent from Auckland by Mr. T. Lawson; they do not show any indications of sexual distinctions.

Obs.—It is just possible that this insect may ultimately prove not to be absolutely congeneric with the Australian *Phagonophana Kingi*, the only species of the genus hitherto described. King in his description of the genus does not tell us whether the intermediate coxæ of *P. Kingi* are contiguous or not. Now in the New Zealand *P. setosa* the intermediate coxæ are contiguous, or rather separated only by a very thin lamina, whereas in an Australian species I possess from Victoria these parts are separated by a plate so much broader that they would be more correctly described as subcontiguous; I do not know whether this Victorian insect be conspecific or not with the *P. Kingi*, but it is at any rate highly probable that it is a member of the same genus. From King's description we learn also that the hind coxæ are contiguous in *P. Kingi*, and this is also the case with the individual from Victoria, whereas in the New Zealand *P. setosa*, the hind coxæ are not quite contiguous, though the space separating them is very small. The resemblance between the Australian species and the New Zealand one is however in all other respects so great, that I do not think it would be correct to place them in different genera.

LIST OF SPECIES.

PSELAPHIDÆ.

| | | | | | | |
|-------|---------------------|----|----|----|----|--------------|
| | Ctenistes impressus | .. | .. | .. | .. | Australia. |
| | simplex | .. | .. | .. | .. | " |
| | parvus | .. | .. | .. | .. | " |
| | Tyrus mutandus | .. | .. | .. | .. | New Zealand. |
| | Tyrus (?) mirandus | .. | .. | .. | .. | Australia. |
| n. g. | Tyraphus planus | .. | .. | .. | .. | " |
| | brevis | .. | .. | .. | .. | " |
| | major | .. | .. | .. | .. | " |
| | Pselaphus mundus | .. | .. | .. | .. | " |
| | pauper | .. | .. | .. | .. | New Zealand. |
| | tenuis | .. | .. | .. | .. | Australia. |
| n. g. | Gerallus nanus | .. | .. | .. | .. | " |
| n. g. | Durbos prisceus | .. | .. | .. | .. | " |
| | Bryaxis optata | .. | .. | .. | .. | " |
| | recta | .. | .. | .. | .. | " |
| | inflata | .. | .. | .. | .. | New Zealand. |
| | micans | .. | .. | .. | .. | " |
| | dispar | .. | .. | .. | .. | " |
| | deformis | .. | .. | .. | .. | " |
| | impar | .. | .. | .. | .. | " |
| | grata | .. | .. | .. | .. | " |
| | spreta | .. | .. | .. | .. | Australia. |
| | concolor | .. | .. | .. | .. | " |
| | plecta | .. | .. | .. | .. | " |
| | sulcata | .. | .. | .. | .. | " |
| | euplectodes | .. | .. | .. | .. | " |
| n. g. | Dalma pubescens | .. | .. | .. | .. | New Zealand. |
| n. g. | Sagola major | .. | .. | .. | .. | " |
| | prisca | .. | .. | .. | .. | " |
| | misella | .. | .. | .. | .. | " |
| | parva | .. | .. | .. | .. | " |
| | Euplectus convexus | .. | .. | .. | .. | " |
| | opacus | .. | .. | .. | .. | " |
| | Articerus Westwoodi | .. | .. | .. | .. | Australia. |
| | tumidus | .. | .. | .. | .. | " |
| | Pascoeus | .. | .. | .. | .. | " |
| | brevipes | .. | .. | .. | .. | " |
| | Kingius | .. | .. | .. | .. | " |
| | gibbulus | .. | .. | .. | .. | " |
| | spinifer | .. | .. | .. | .. | " |
| | Deyrollei | .. | .. | .. | .. | " |

SCYDMÆNIDÆ.

| | | | | | | |
|--|---------------------|----|----|----|----|--------------|
| | Scydmaenus optatus | .. | .. | .. | .. | Australia. |
| | Edwardsi | .. | .. | .. | .. | New Zealand. |
| | Phagonophana setosa | .. | .. | .. | .. | " |

XXV. *Notes on the peculiar habits and changes which take place in the larva and pupa of Papilio Nireus.* By Mrs. M. E. BARBER. Communicated by CHARLES DARWIN, M.A., F.R.S., &c.

[Read 2nd November, 1874.]

Papilio Nireus, Linn. A large and handsome species. "Expands 3 in. 6 lin.—4 in. 3 lin. Rich velvety-black, with bluish-green stripes and spots." (R. Trimen, *Rhopalocera Africae Australis*.) This butterfly is common in most parts of the Cape colony. In its imago state the flowers of *Plumbago Capensis* are its favourite resort. It frequents orange trees, the larva feeding upon the leaves of that plant, and also upon those of an indigenous forest tree (*Vepris lanceolata*, Fl. cap. i. p. 447). In colour the caterpillar of *P. Nireus* closely resembles that of the leaves upon which it feeds, being of a dark green upon the orange tree, and of a lighter green upon the *V. lanceolata*. The pupa (of which I send you a drawing) may be found among the leafy twigs of its food-plant, or upon those of some neighbouring tree; its usual colour is green (Pl. IX. fig. 1). The drawing, however, goes to prove that, under peculiar circumstances, the caterpillar has the power of assimilating or altering its common colour, following suit, as it were, to any locality in which, by accident or otherwise, it may have been placed.

During the months of March and April I succeeded in rearing a number of these caterpillars. They were placed in a case with a glass cover; the case was partly made of wood, and partly of brick. The colour of the wood was a dullish-yellow, that of the brick a purplish-brown (figs. 3, 4). In the case I had previously placed a branch of the common bottle-brush shrub; its leaves had become partly dried, and were of a pale-green colour.

The caterpillars were fed upon orange leaves, and appeared to thrive well; they were fine, lively, well-conditioned specimens of their kind; they had fresh leaves supplied to them every morning, and, in fact, had nothing

to complain of. When they had attained the full size of their species, and had ceased to feed, they at once set out upon their rambles in search of a suitable spot wherein to assume their dormant or pupa state; finding, however, that their travels were circumscribed, they appeared somewhat puzzled what to be at, and after a fruitless search for a "leafy-dwelling," several of them returned to the orange leaves, and there suspending themselves upon the small twigs, took up their common form and colour (fig. 1); others went to the bottle-brush branch, and there became pale yellowish-green pupæ (fig. 6), of precisely the same colour as the half-dried leaves. One of the caterpillars in particular affixed itself upon the wooden framework of the case, where the wood and the brick came in contact with each other, and, to my surprise, this caterpillar, after throwing off its bright green skin, assumed the colours of *both the wood and the brick*, its under-side resembling that of the wood to which it was attached (fig. 3), and the upper side that of the adjacent brick-work (fig. 4). So perfect was the assimilation, that at first glance I failed to detect the pupa in its altered condition, and looked upon the floor of the case to see if the caterpillar had fallen. Some days later another specimen affixed itself to the wooden frame of the case, and then became a yellowish pupa (fig. 5), of the same colour as the wooden frame. I then tried an experiment by surrounding one of the caterpillars with a piece of scarlet cloth, but the creature failed to imitate this brilliant hue; the coloured spots upon the pupa were, however, of a brighter red than those upon pupa No. 1 (fig. 1), otherwise I could observe no difference. The season was now far advanced, there was no time for further experiments; I had succeeded in obtaining four different colours,—the dark green pupa of the orange tree, the pale yellow green of the bottle-brush, the yellow of the wooden frame, and the purple and yellow, when the colours came in contact. In its natural state I have ever found the pupa of *P. Nireus* to be true to the colour of the leaves of its food plant.

I do not consider the changes described in this paper to be merely accidental; it is sufficiently evident that they are of a conservative nature,—a protection to the butterfly, during its helplessness as a pupa, from the ravages of insectivorous creatures, to which a bright-green pupa upon a dark-brown surface would be greatly exposed.

The question, however, naturally arises, are the changes described produced by the desire or will of the caterpillar, like those which take place in the lizard of Griqualand, or in the chameleon, or is it merely an instance of nature's conservative power, brought about without any effort on the part of the creature itself?—a sun picture or photograph. You are aware of the exceedingly transparent nature of a pupa during the first day of its existence in that form,—may it not in that state have the property of absorbing or reflecting the surrounding colours, and thus become the means of its own concealment and preservation? That the caterpillar is aware of the change that will take place in its altered colour, I am fully convinced. I have no doubt whatever, that when the insect placed itself upon the dark-brown surface of the case, it was aware that the result would not be a bright-green pupa exposed upon a dark-brown surface to the vision of its enemies.

Moreover, I have several times observed that the larva of the Sphinx moth never differs in colour from that of the leaves upon which it feeds, excepting in its last change. To be, however, more explicit, the caterpillar of the Sphinx moth changes its skin many times while feeding, keeping true to the colour of the leaves of its food plant, until it has attained its full growth, and requires no further food. It then, *previous to casting its skin for the last time as a caterpillar, retires to a sheltered spot, mostly the brown stem of its food plant*, and throwing off its green coat, for which it has no further use, it assumes a dark-brown, earthen-coloured one. In this form it is destined to traverse the earth in search of its future habitation, in which as a pupa buried beneath dried leaves, or slightly beneath the soil, it has to pass the long winter months. If the caterpillar in its bright-green coat, exposed to its enemies, had to seek out its future hiding-place, how slight would be its chances of escape; its earthen colour is, therefore, of the greatest service to it, as was that of the green while feeding amongst the green leaves,—hence the cause of the wonderful changes which take place in the colour and form of these insects.

XXVI. *Descriptions of some new species belonging to the genus Lycæna.* By the Rev. R. P. MURRAY, M.A.

[Read 2nd November, 1874.]

Lycæna Chinensis, n. sp. (Pl. X. fig. 5.)

Wings brown above, with a conspicuous submarginal orange band, equally marked on both wings, and a faint black streak closing cell. In the forewing the orange band is divided by the veins into almost square spots: in the hindwing the band is composed of a series of contiguous crescents, seated upon a row of black spots. Fringe white, interrupted by brown.

Underside: pale grey-brown, the orange band as conspicuous as above, continuous in both wings. *Forewing*: no spot between base and disco-cellular spot. Beyond middle is a discal row of seven spots, twice bent at a right angle, so that the sixth is immediately below the disco-cellular spot: the costal spot is small and indistinct. All these spots are white-ringed. The orange band is edged on both sides by a row of spots, the innermost row consisting of larger, but less well-defined spots than the outer.

Hindwing: a basal row of four spots, a disco-cellular spot, and a discal row of eight spots, much curved and angulated, all white-ringed. The orange band is edged as on forewing by rows of spots, but in this case the spots of the outer row are larger than those of the inner. In both wings the fringe, which is spotted, is preceded by a narrow black line.

Expands 1" 3".

Hab.—North China.

This very distinct species is (judging from the markings of the underside) most nearly allied to *Lyc. Pylaon*, F., while the upper side reminds one strongly of *L. Astrarche*, Bgstr. (more commonly known as *L. Medon* or *Agestis*).

Lycæna pulchra, n. sp. (Pl. X. figs. 7, 8.)

♂. Violet-blue with a narrow brown edging along the hind-margin of forewing, which is replaced in the hindwing by a distinct dark brown line, edged internally towards anal angle by a white line. Inner margin of hindwing white. Two or three blue-black dots towards anal angle of hindwing. Fringe dirty white. Hindwings with a rather long filiform tail, tipped with white.

On the underside this insect closely resembles African specimens of *L. Telicanus*,—indeed it is not easy to discover any constant differences. The ground colour of the wing seems, however, whiter, and the fulvous crescents surmounting the metallic spots at anal angle of hindwing more conspicuous than in that species.

♀. Brown, shot with blue over the bases of wings. *Forewing*: a conspicuous spot closing cell, and a somewhat angulated row of spots beyond it, one of which is situated almost immediately below the disco-cellular spot. All these spots are edged on both sides with white. Between the disco-cellular spot and the uppermost of the row of spots is a small brown cloud.

Hindwing: a basal transverse band and large disco-cellular spot, both edged with white: a band of white lunules beyond middle, and a marginal series of brown lunules (the two next anal angle black and conspicuous), surmounted by whitish crescents. Underside as in ♂.

Expands: ♂ 11"—1" 1"; ♀, 1" 1"—1" 2".

Hab.—West Africa.

This form so closely resembles on its underside the very variable *Lyc. Telicanus*, Lang., that I was for a long time doubtful of the propriety of describing it as a separate species, but the great difference in the colouring of the upper side of the male, combined with the constant smaller size of the specimens, and some difference, difficult to describe, in the shape of the wings, have now led me to consider it as distinct.

The foregoing description has been made from 3 ♂ and 2 ♀ specimens in my collection.

Lycæna lineata, n. sp. (Pl. X. fig. 9.)

Closely allied to *L. Palmyra*, Feld., from which it hardly differs on the upper side, except in having the fringe unspotted.

Underside: *Forewing* brown, marked on the centre by a conspicuous white blotch, commencing narrowly on subcostal vein, and abruptly widening on third median nervule, so that it is three or four times as wide on the inner margin as at its commencement near the costa. The white is continued narrowly along inner margin to base. Two white streaks, forming the margins of an obsolete band, cross the wing near base, and the dark disco-cellular streak, which is partly obliterated by the white blotch, is also internally edged with white. Beyond the blotch is a curved row of indistinct darker spots, externally edged with white. Along the hind-margin is a row of brown lunules, surmounted by a double series of white crescents, the space between them being darker than the ground colour. A thin black line precedes the fringe, which is unspotted.

Hindwing: brown, crossed by numerous broken white lines, forming the margins of almost imperceptible transverse macular bands. These appear to consist of two basal bands, a disco-cellular mark, and a band beyond the middle, the last mentioned being darker and more distinct, and commencing with a white spot on costa, containing a small black central dot. Hind-marginal markings as in forewing, but the two lunules nearest anal angle are black, marked on their outer edge with metallic scales, and each surmounted by a fulvous lunule. Fringe indistinctly spotted. Hindwings tailed.

Expands 1"—1" 1".

Hab.—Queensland.

Lycæna Indica, n. sp. (Pl. X. figs. 2, 3.)

♂. Wings blue. *Forewing* with a narrow costal and somewhat broad hind-marginal brown border. *Hindwings* with a similar brown border, broad on costa, narrow on hind-margin.

Underside: grey-brown: *forewing*, no spot between base and disco-cellular spot, which is brown, edged on both sides by white: a conspicuous discal row of six black spots, ringed with white: of these the lowest is less distinct, and is geminated. A double hind-marginal series of brown lunules, of which the inner is surmounted by whitish, and the outer edged on both sides by the same colour. *Hindwing*: a basal row of three spots, a disco-cellular spot, and an angulated discal row of eight spots, all brown, narrowly

surrounded by whitish. Hind-marginal markings as on forewing. Fringe pale brown, unspotted.

♀. Wings above brown, blue at base. Underside as in ♂.

Expands: ♂ 9"—10"; ♀ 9"—11".

Hab.—Allahabad, India.

This insect seems to be very common in the neighbourhood of Allahabad, as I possess a considerable series, collected there by my brother. I have failed to find it anywhere described, and Mr. Moore has also expressed his belief that it is a new species. It belongs to the *Lysimon* group.

Lycæna parva, n. sp. (Pl. X. fig. 1.)

Wings above glossy brown. *Forewing* with a very faintly marked disco-cellular streak, and a narrow hind-marginal edging of darker brown. Fringe pale brown. *Hindwing* with a fine black line before the fringe, preceded by a white line. Three conspicuous orange spots on hind-margin towards anal angle: each marked exteriorly by a black spot. Fringe paler than on forewing.

Underside: wings rather dark grey-brown. *Forewing* with a black, white-ringed spot closing the cell, and a discal row of six similar white-ringed spots, closely followed by a transverse series of white streaks. Along the hind-margin is a series of brown lunules, only slightly darker than the ground colour, edged on both sides by white. A very fine brown line precedes the fringe.

Hindwing: a basal transverse row of four black, white-ringed spots, two white streaks forming the margins of the obsolete disco-cellular spot, and a discal row of eight spots only indicated by thin white edgings, except the costal spot, which is black: this row is followed, as on forewing, by a series of rather indistinct white marks: hind-marginal markings as on forewing, except that the three lunules nearest anal angle are black, almost completely surrounded by metallic scales, and surmounted by orange lunules. Fringe glossy brown.

Expands 8".

Hab.—Diamond Fields, South Africa.

This species is very closely allied to *L. Trochilus*, Frey, of which it is possible that it is only an accidental variety. I think, however, that it is distinct, on account of its much smaller size, and also from its presenting in both wings a

series of white markings immediately beyond the discal row of spots. I have never seen this in *L. Trochilus*, which is, besides, a species little liable to vary.

Lycæna Felderi, n. sp. (Pl. X. figs. 4, 6.)

♂. Wings brown above, showing in some lights a dull violet tinge. A narrow, dark-edging line before the fringe, which is brown, indistinctly spotted with darker. Hindwings tailed.

Underside: wings lighter brown. *Forewings*: a transverse band near base, an oblong spot closing cell, and a submacular band beyond middle, strongly broken on second median nervule. All these markings are of the ground colour, thinly edged by darker brown, and surrounded by white. An indistinct row of brown spots, surmounted by brown crescents, along hind-margin. *Hindwings*: markings similar to those on forewings, but more irregular. The spot above root of tail is black, spotted with golden, and surmounted by a fulvous crescent. There are a few additional golden scales at anal angle. Fringe more distinctly spotted than on upper-side.

♀. Wings brown, forewings shot with vivid blue at base. Hindwings with a marginal series of spots, indistinctly surmounted by blueish crescents. The spot above root of tail is largest and blackest. The line before the fringe is on hindwings preceded by a narrow white line, most distinct towards anal angle. *Underside*: as in ♂, but the ground colour more ochreous, and the markings, especially those along the hind-margins of both pairs of wings, much more distinct. The fine dark line before the fringe is well marked on all the wings.

Expands 10"—12".

Hab.—Queensland.

This species is allied to *L. Macrophthalma*, Feld., but differs materially in possessing a submacular band between the sub-cellular spot and the base of the wing. I possess a single specimen (♂) of a closely allied species from Borneo, which will, I think, ultimately require description.

Lyc. Felderi belongs to the section *Lampides*, Hübn., which is distinguished by the possession of a tailed hindwing, and by the presence of one or two metallic spots at the anal angle of the hindwing, on the underside. I cannot consider that these spots afford a generic character: they are strongly of the nature of a colour distinction, which

is seldom to be relied on: moreover, they present a very variable character: e. g., *Lyc. Ceraunus*, F., possesses but one of these spots on each hindwing: while specimens in my cabinet, which were referred by Mr. Butler to his *L. Zachæina*, only differ from *L. Ceraunus* by possessing two of these spots. *L. Cassius*, Cram., possesses two spots: *L. pseudo-Cassius*, Murray, has three. I need only refer in addition to the long list of species belonging to the *Argus* and *Trochilus* groups, in which these spots form a more or less complete marginal edging to the wing, in support of my opinion that these markings should cease to be relied on as of generic value.

The tailed hindwings appear at first sight of more importance, being certainly, to some extent, a structural character; but a careful consideration of many interesting species, both in *Lycæna* and the allied genus *Chrysophanus*, has forced me, somewhat reluctantly, to the conclusion that this, too, must be abandoned as a generic character.

In *Chrysophanus* the hindwing ordinarily presents a more or less marked projection on the first median nervule, which, however, cannot be designated a tail. In *C. Orus*, Cram., from South Africa, this projection is wanting, so that the outline of the hindwing is rounded. On the other hand, we are unexpectedly met, in Persia, by a group of species, which are undoubtedly true *Chrysophani*, but which possess a tail, at least as well developed as in any known species belonging to the so-called genus *Lampides*. These species are named *C. Lampon*, Led., *C. Phænicurus*, Led., and *C. Carpius*, Led. The last two are very distinct species, to which it is unnecessary to refer further. But *C. Lampon* is so closely allied to *C. Ochimus*, H.-S., that it can with difficulty be distinguished from it, except by the possession of a long filiform tail. This curious tendency to produce tailed forms seems confined to Persia, so far as the genus *Chrysophanus* is concerned (the Persian *Lycæna* do not share the character), since none either of the European or Himalayan species present the character, and the only new *Chrysophanus* discovered by M. Fedtchenko in Eastern Turkestan (*C. Solshyi*) is equally destitute of a tail.

But to proceed to the genus *Lycæna*. Here we find, roughly speaking, three groups: those with no tails, those with well developed tails, and those with very short tails. Of these latter, *L. Parsimon*, Fabr., may be accepted as the representative. It is closely allied to other species

(such as *L. Asopus*, Hopf.) which are tailless; in fact, while *L. Parsimon* usually possesses tails, some races of the species appear to be destitute of them (*vide* Mr. Trimen's very interesting paper on the butterflies of Basuto-land, in *Trans. Ent. So. Lond.* 1870, p. 361). Again, *L. Mindora*, Feld., is tailed; but the closely allied *L. Arruana*, Feld., is destitute of such an appendage. *L. Cassius*, Cram., has no tail, while my *L. pseudo-Cassius*, which is so closely allied to it that Mr. Hewitson considers it not to be distinct, in spite of the enormous difference in locality (Queensland, as opposed to tropical America), has a well developed tail.

In the *Danis* group (I only use the word for convenience) the presence or absence of a tail appears immaterial. Witness *L. Ilissus*, Feld., tailed; *L. Taygetus*, Feld., tailless. The foregoing observations appear to me sufficient to prove that the characters in question, although still relied on by some Entomologists as of generic value, can in no way be depended on; and that if the genus *Lycæna* is to be divided, we must find some better character on which to found our new genera.

I will only add further that the two characters on which I have just remarked are by no means always to be found united. Many species which possess metallic spots at the anal angle of the hindwing are not tailed, e. g., *L. Jesus*, Guér, *L. Cassius*, Cram., and *L. Ceraunus*, Fabr.; while more rarely tailed species are destitute of the metallic spots. This is the case with some species of the *Castalius* group.

But for Mr. Moore's repeatedly expressed opinion, that the insect described in this paper as *L. Indica*, was undescribed, I should have been inclined to doubt whether it were distinct from his *L. Sangra*.

XXVII. *Descriptions of three new species and a new genus of Diurnal Lepidoptera, from the collection of Andrew Swanzy, Esq. By ARTHUR GARDINER BUTLER, F.L.S., F.Z.S., &c.*

[Read 2nd November, 1874.]

THE three following species were all collected at Whydah, on the Gold Coast, and are exceedingly beautiful.

Charaxes imperialis, n. sp. (Pl. XI. fig. 3.)

♂. Wings above blue-black; primaries with an oblique discal series of spots (inarched towards costa), increasing in size from just below subcostal nervure to just beyond the middle of internal margin, the upper four spots punctiform, white, with cobalt-blue lunate external margins, the fifth and sixth spots blue, subovate, the last spot (or rather patch) irregularly oblong, cut by the internal nervure; a white spot at end of discoidal cell, and two white dots placed transversely half-way between it and the discal series; a marginal internervular series of blue-grey lituræ; secondaries with costa and base brown; abdominal area whitey-brown, the edge formed at submedian nervure densely clothed with long brown hairs; a broad central blue band from subcostal to submedian nervure; a transverse, blue-edged, white subcostal spot above central band; a submarginal series of eight blue spots; an interrupted lunulated blue line close to outer margin, from second subcostal to anal angle; body above blackish-brown, collar olivaceous, head and pterygodes white-spotted, antennæ black: wings below stone-coloured, varied with white-edged black lines and yellow and white spots, (much as in *C. Tiridates* and allies, but with all the black lines differently disposed, less continuous, more slender and more narrowly bordered with white); one ocelloid spot at external angle of primaries: body below dirty cream-colour: expanse of wings 3 in. 5 lin.

The primaries of *C. imperialis* are somewhat like those of *C. Etesipe* ♂ (*Etheta*) on the upperside, but the blue

band is farther from the outer margin, especially at its lower extremity; the secondaries, which have two short caudate projections, are most like those of *C. Amelia*, but the blue band is three times as wide, and there is a white spot above it; the underside differs a good deal from all the allied species.

Genus PSEUDERESIA, n. gen.*

Allied to *Liptena*: primaries elongate-triangular; subcostal nervure six-branched, the first only emitted before end of cell, the sixth apparently representing the upper radial; secondaries short, pyriform; cell extending to middle of wing, disco-cellulars oblique, lower twice as long as upper, concave; subcostal branched on a level with end of cell: body long, slender, palpi moderately long, slightly hairy; antennæ about two-fifths the length of primaries, very slender, submoniliform, annulated with white, club very abrupt, compressed.

Type, *Pseuderesia Catharina*.

Pseuderesia Catharina, n. sp. (Pl. XI. figs. 4, 5.)

Wings above black, primaries with a transverse spot at end of cell, and a large suboval patch cut by the median branches dark orange; apical costa of primaries and outer marginal fringe varied with white: body black-brown; antennæ black, annulated with white; primaries below brown, varied with silvery-grey, basal area crossed by three broad irregular black bands; between the second and third and within cell a reddish-orange spot; a broad subtriangular orange patch from just beyond end of cell to near external angle, fading into brown towards inner margin, and cut by the radials and median branches; a black irregular discal band deeply sinuated between the nervures externally and bordered with red; a submarginal line, forming two triangular spots towards apex, and a marginal line black; fringe varied with white; secondaries silvery-grey, irrorated with red from base to middle of wing; base, a triangular spot filling the end of cell, and a subcostal spot red; three small rounded sub-basal, and three

* We have two species apparently referable to this genus in the British Museum; but a promise which I made to Mr. Hewitson has prevented my doing anything with them. They are described and figured by Hewitson as species of *Liptena*. A fourth species (resembling *Terias*) is in the Dublin Society's Museum.

more or less irregular, larger, subcentral black spots edged with whitish; a discal irregular series of eight black spots, bordered externally with red; a submarginal series of triangular black spots; outer margin black, fringe white-varied: body below brown, legs black, varied with white: expanse of wings 1 in. $6\frac{1}{2}$ lin.

I have named this beautiful little species after a member of Mr. Swanzy's family recently married.

Genus CIGARITIS, Lucas.

Cigaritis Amine, n. sp. (Pl. XI. figs. 1, 2.)

Wings above glossy brown; primaries with a minute spot near end of cell, and a double series of five spots beyond the end, orange; external third orange, very irregular internally, cut through the middle by a brown undulated band, adhering to which externally is a series of six black submarginal spots; margin black, fringe sprinkled with orange; secondaries with external two-fifths orange, very irregular internally; two submarginal internervular series of black spots; veins terminating in marginal black points; fringe brown, two slender short black tails as usual: body above brown, abdomen orange at the sides; antennæ black, annulated with white; primaries below with the costa and outer margin broadly orange; the remaining area pale buff, crossed by black nervures interrupted by four irregular transverse black-edged orange bands, and spangled with silver; a terminal, brown, silver-spangled line dividing it from outer marginal border; a submarginal row of black spots; nervures terminating in a marginal series of black dots; fringe brown; secondaries orange, crossed by three irregular buff bands, cut by the black nervures, the basal one forking above subcostal nervure, the second sigmoidal, the third arched, joining the second at each extremity; base of the wing and the outer edges of the second and third bands spangled with silver; a submarginal series of black spots; nervures terminating in a marginal series of black dots; fringe brown, tail black: body below whitish: expanse of wings 1 in. 4 lin.

Unlike any described species in colouring; on the underside it reminds one of *Melitæa theana* and *Pyrgus mohozutza*, but the colouring is brighter; and the silvery spangling gives it a brilliancy not surpassed by *Zeritis*.

XXVIII. *Notes on Australian Coleoptera, with descriptions of new species.* By CHAS. O. WATERHOUSE.

[Read 2nd November, 1874.]

NECROPHAGA.

HETEROCERIDÆ.

ELYTHOMERUS, gen. nov.

Corpus elongatum. Mentum antice fortiter triangulariter emarginatum. Labrum arcuatim acuminatum. Coxæ anticæ contiguæ, intermediæ fere contiguæ.

The species for which I propose the above generic name differs from any *Heterocerus* with which I am acquainted in its singularly elongate form, but I am induced to separate it chiefly on account of the proximity of the intermediate coxæ. The prosternum is not keeled, and is not visible between the anterior coxæ.

Elythomerus elongatulus, sp. nov.

Elongatus, sub-cylindricus, nitidiusculus, pubescens, pallide flavus. Elytrorum sutura infuscata.

Long. 6 mill. ; lat. $1\frac{3}{4}$ mill.

Elongate, gently convex, pale testaceous, with the thorax a trifle less pale. Head transverse, scarcely narrower in front of the eyes. Thorax opaque, a little broader than the head, a little broader than long, scarcely narrowed in front, the anterior angles obtuse, the sides slightly rounded, the posterior angles obliquely truncated, the width at the base equal to the width of one elytron. Scutellum very small. Elytra twice as long as the head and thorax together, parallel, rounded at the apex, gently convex, scarcely shining, densely and extremely finely punctured, the suture slightly infuscated. Anterior tibiæ broad, bowed on the outer edge, which is furnished with eight or nine long slightly curved bristles.

Hab.—Queensland. Coll. Brit. Mus.

Heterocerus Australasiæ, sp. nov.

Oblongus, sub-opacus, testaceus, pubescens; capite fusco, elytris singulis maculis tribus infuscatis ad suturam connexis ornatis.

Long. $3\frac{1}{2}$ mill.; lat. $1\frac{1}{2}$ mill.

Head blackish-brown. Thorax transverse, twice as broad as long, convex, straight in front, much rounded at the sides, rounded behind; testaceous, with the disk slightly tinged with brown. Elytra as broad as the thorax and three times as long, thickly and very delicately punctulate; testaceous, with the posterior half of the suture and three spots on each elytron pale fuscous; the basal spot commences on the shoulder, extends down the middle of the elytron, and then turns to join the suture; the second spot is near the margin, and extends to join the basal spot just before it joins the suture; the third spot is like the letter Z (reversed on the left elytron), placed obliquely, and occupying the apical area.

This species most nearly resembles *H. sericans*, and is very like it in form. Besides the difference of size and markings above described, it has the elytra more finely punctured, and they are distinctly narrowed immediately below the shoulders.

Hab.—W. Australia (Du Boulay). Coll. Brit. Mus.

LAMELLICORNIA.

MENTHOPHILINÆ.

AULACOPRIS, White, Proc. Zool. Soc., 1859, p. 118.

Hab.—East Australia.

The characters which separate this genus from the American genus *Deltochilum* are slight, but I think sufficient to justify its adoption as a distinct genus.

The metathoracic episterna are elongate and narrow. Anterior tarsi short, stout. Pygidium small and perpendicular. Posterior tibiæ straight, except at the extreme base, crenulate on the inner side. Thorax produced behind in the middle in a point over the suture of the elytra. Basal joint of the posterior tarsi very short, shorter than the second.

MERODONTUS, MacLeay, Trans. Ent. Soc., N. S. Wales,
ii. p. 117.

This name having been already used in the *Rhynchophora*, I propose to re-name it *Platyphymatia*.* The following will be a second species in the genus.

P. aneopicea, sp. nov.

Elongata, aneo-picea, subnitida. Capite crebre fortiter punctato. Thorace convexo, antice emarginato, postice rotundato; lateribus subparallelis, leviter constrictis; dorso sat parce obsolete punctato, antice carinulis duobus approximatis, postice tuberculis quatuor semicirculariter positus. Elytris thorace vix latioribus, depressis, basi lævissime emarginatis, ad apicem sub-acuminatis, deflexis, leviter striatis, suturâ 15-tuberculatâ, interstitiis planis, impunctatis, 3, 5 et 7 singulis tuberculis duobus; lateribus subparallelis, carinatis, carinâ vix ad apicem attingenti, pseudo-epipleuris latis, inflexis. Metasterno lato, fortiter sat parce punctato. Tibiis anticis tridentatis. Pygidio 4-tuberculato.

Loæg. 4 lin.; lat. 2 lin.

The intermediate tibiæ are gently curved, furnished on the outer side with two semicircles of bristles. The posterior tibiæ are curved, very slightly crenulate on their edges, with two tubercles on the outer edge below the middle. The basal joint of the hind tarsi is elongate, about equal to the two following taken together; the 2nd to 4th become gradually shorter and more slender. Besides the four tubercles on the posterior part of the thorax mentioned above, there is a small tubercle just above each posterior angle.

Closely allied to *M. calcaratus*, MacL., but (judging from description) differs in being shining, in having the elytra impunctate, and in having a row of distinct tubercles on each side of the suture of the elytra, of which there is no mention in Mr. MacLeay's description, &c.

Hab.—Queensland. Coll. Brit. Mus.

Temnoplectron leve, C. Waterh.

We have just received the male of this insect. It differs from the female in having the intermediate femora

* Since the above was written I have learned from Mr. D. Sharp that another name, which has also been used, has been proposed for this genus, so that my name will remain.

furnished near the apex on the under side with an obtuse tooth. The posterior tibiæ are proportionately longer, very slender, and are produced beyond the insertion of the tarsus (nearly to a level with the third joint), in the form of a spur, which is obliquely truncate at the apex.

RUTELIDÆ.

Anoplognathus quadrilineatus, sp. nov.

Testaceus, nitidus; corpore subtus æneo-piceo; fronte maculis duabus parvis, thorace lineis quatuor longitudinalibus, scutelli lateribus obscure æneis. Elytris suturâ, lateribus, maculâque ad basin pallidis. Antennis pedibusque piceis.

♂. Clypeo sat parce punctulato, marginibus reflexis; tibiis anticis bidentatis.

♀. Clypeo dense sat rugoso-punctato, marginibus vix incrassatis; tibiis anticis tridentatis.

Long. 7 lin.; lat. $3\frac{3}{4}$ lin.

Oblong, a little broader posteriorly, moderately convex. Head with the forehead sparingly punctured, with two small spots on the vertex; clypeus transverse, rounded in front, only separated from the head by a very faint line at the sides. Eyes prominent. Thorax a little more than twice as broad as long, delicately and not very thickly punctured, emarginate in front, bisinuate behind; the sides gently rounded in front; anterior angles somewhat acute. On each side there are two longitudinal pitchy-green narrow lines; the central pair nearly parallel, straight, notched on the inner side in the middle; the outer pair nearly in the form of { } . The elytra are scarcely broader than the thorax at the base, a little wider behind, obtusely rounded at the apex, somewhat thickly and strongly punctured, semi-transparent, with the sides, the suture, and a triangular spot in the centre of the base of each elytron, opaque yellowish-white. There is also a very small oblique pitchy spot on the extreme base of each elytron. The sides of the abdomen and sternum are thickly punctured.

Hab.—Queensland. Coll. Brit. Mus.

This insect differs from the typical form of *Anoplognathus* in the form of the head, and in not having the clypeus separated from the forehead except at the sides.

CALLOÖDES, White, Ann. and Mag. N. Hist., 1845,
xv. p. 38.

This genus, as indicated by Mr. White, should be adopted as distinct from *Anoplognathus*. It is at once separated by the anterior tibiæ being simply produced at the apex on the outer side, without any teeth on the outer edge. The apex of each elytron is slightly produced into a point.

Species:—*C. Grayianus*, White; *C. Rayneri*, MacLeay; and *C. Atkinsonii*, Waterh.

SERRICORNIA.

BUPRESTIDÆ.

Stigmodera pubicollis, sp. nov.

Ærea, subdepressa; corpore subtus thoraceque griseo-pubescentibus, rugoso-punctatis; elytris obscure-piceis, marginibus tenue flavis, fortiter striatis, interstitiis convexis, fortiter punctatis, apicibus simplicibus.

Long. 11—15 lin.; lat. $4\frac{1}{2}$ — $6\frac{1}{2}$ lin.

Intermediate between *S. Parryi* and *S. flavocincta*, but very close to the former, from which it differs in being rather shorter, less convex, and in having the thorax bronzy, and thickly clothed with long pale pubescence. The under side is bronzy, thickly pubescent, and rugosely punctured; the abdomen is very strongly and unevenly pitted and punctured, with the central line smooth. The thorax is a little more than twice as broad as long, broadest a little behind the middle, the sides gently rounded; the surface corrugate, the raised portions smooth, the sunken parts thickly punctured; the lateral margins are flavous.

The female has the apical segment of the abdomen beneath evenly rounded; in the male it is slightly truncate.

One specimen of this species has the flavous margin to the thorax almost entirely wanting.

Hab.—Swan River. Coll. Brit. Mus.

St. pubicollis, var. major.

In the British Museum collection there are two specimens from N. W. Australia, measuring 18 lines in length,

which (besides the size) differ from the ordinary form of *S. pubicollis* in having the thorax nearly black (with reddish margins), the posterior angles rectangular, and the surface is much more even, the discoidal part being strongly punctured; the front margin and the sides corrugated as in the typical form. The thorax and under surface of the body are, moreover, scarcely pubescent, but this may be the result of accident.

Stigmodera tibialis, sp. nov.

Subtus area, rugoso-punctata; thorace nigro-æneo, crebre punctato, lateribus rotundatis; elytris rufo-piceis, marginibus fasciis tribus apiceque flavis; tibiis intermediis basi triangulariter dilatatis.

Long. 21—24 lin.; lat. 9—10½ lin.

Closely allied to *St. Stevensii*, but at once separated from it by the unicolorous thorax, which has the sides more rounded; by the abdomen being bronzy, and by the triangular dilatation on the intermediate tibiæ having its apex acute.

Hab.—S. Australia. Coll. Brit. Mus.

Stigmodera septemguttata, sp. nov.

Viridi-aurea, depressa; thorace valde transverso, crebre fortiter punctato; elytris thorace paululo latioribus, apicem versus arcuatim acuminatis, apice breviter quadrispinosis, testaceis, sanguineo-marginatis, maculis septem viridibus.

Long. 5 lin.; lat. 2½ lin.

Allied to *S. vicina* of Hope, but having the general appearance of *S. mustelamajor*, Thomson. The head is thickly punctured. Thorax posteriorly twice as broad as its length, as narrow as the head in front, gradually widening for about four-fifths its length and then rounded, not very convex, moderately thickly and distinctly punctured, strongly and rugulose punctured at the sides. Elytra a little broader than the thorax, depressed, sinuate at the sides, broadest a little behind the middle, and then narrowed somewhat abruptly to the apex; each elytron furnished at the apex with two equally short spines, pale testaceous, margined with red, strongly punctate-striate; the interstices very convex, sparingly and very delicately punctured; there is a round green spot below each shoulder, and another on the margin a little behind the middle; there

are three spots on the suture, one elongate, joining the scutellum, another a little behind the middle, the third subapical larger. Each elytron is furnished at the apex with two equally short spines. The under side of the body is bright green.

Hab.—Queensland. Coll. Brit. Mus.

Stigmodera quinquepunctata, sp. nov.

Æneo-nigrescens, parallela, elongata; thorace globoso, crebre punctato; elytris subparallelis, apice quadrispinosis, sat fortiter punctato-striatis, interstitiis convexiusculis parce subtiliter punctulatis, testaceis, pone medium maculis quinque nigris.

Long. 5 lin.; lat. 2 lin.

Allied to *S. spilota*, Lap. & Gory., but rather narrower and more depressed, with the apex of each elytron distinctly bidentate, the outer teeth being the longer; with three black (or aeneous-black) spots behind the middle, placed one on the suture and one on each side of it on the margins, and two others, smaller and rounder, placed close to the apex of each elytron. Thorax one-third broader than long, convex, aeneous, straight in front, much rounded at the sides, bisinuate at the base, moderately thickly and strongly punctured, rugulose at the sides. Scutellum green, with a few punctures. Elytra three and a quarter times as long as the thorax, but scarcely broader than it, slightly convex, a little broader posteriorly, rounded towards the apex; the margins at the extreme apex are minutely crenulate. The body beneath is blackish-æneous.

Hab.—Queensland. Coll. Brit. Mus.

Stigmodera confusa, sp. nov.

Elongata, cuprea; thorace globoso, crebre punctato; elytris thorace haud latioribus, fortiter punctato-striatis, (interstitiis convexis parce subtiliter punctulatis), cupreis, singulis maculis tribus flavis, unâ basali magnâ ad humerum divisâ, secundâ ad marginem, tertiâ parvâ ad apicem; apice bidentato.

Long. 5 lin.; lat. $1\frac{3}{4}$ lin.

Closely allied to *S. Wilsoni*, E. Saund., but besides the additional apical yellow spot on the elytra, it may be distinguished by its more convex thorax, with more rounded sides; the scutellum is almost impunctate; the interstices on the elytra are more convex and very sparingly punctate.

tured, and the apical teeth are less separated from each other.

Head very deeply impressed. Thorax one-third broader than long, very convex, much rounded at the sides, narrowed posteriorly, bisinuate at the base, thickly and somewhat strongly punctured on the disk, coarsely punctured at the sides. Scutellum green, with only one or two punctures. Elytra scarcely as broad as the thorax, gradually acuminate towards the apex, with three yellow spots on each; the basal one occupies the basal half of the elytra in the form of an L, with the base very broad; the second spot is placed behind the middle, broad, touching the margin but not the suture of the elytra; the third spot is very small, subapical. The margin at the extreme apex is minutely serrate. Body beneath coppery, sparsely pubescent.

Hab.—Queensland. Coll. Brit. Mus.

Stigmodera atronotata, sp. nov.

Elongata, parallela, punctata, sanguinea, atronotata; thorace crebre fortiter punctato; elytris apice breviter quadrispinosis, striatis, interstitiis crebre punctatis, interstitio secundo fere lævi.

Long. $4\frac{3}{4}$ lin.; lat. $1\frac{3}{4}$ lin.

Closely allied to *S. elegantula*, White, but differs in having the thorax transverse, much more thickly punctured; and the elytra at the apex are much less acuminate, and the four apical teeth are simply the result of each elytron being obliquely emarginate at the apex.

Head aeneous-black, thickly and strongly punctured. Thorax bright red above and below, transverse, more than one-third broader than long, somewhat depressed posteriorly, somewhat thickly and strongly punctured, with a narrow border at the base, a spot on the disk and a small spot on each side black; the sides are rounded in front, nearly straight behind, the thorax being broadest at the hind angles, which are nearly rectangular. Scutellum blue, concave, with one or two punctures. Elytra scarcely broader than the thorax, gently rounded at the apex, moderately strongly punctate-striate, the interstices (except the second, which is nearly smooth), thickly and strongly (almost rugosely) punctured; the colour is yellowish-red, with a transverse spot at the base, not reaching the shoulders, a second oblique spot at the side

behind the middle on each elytron, a very small spot on the suture between the lateral ones, and the apex opaque black. The antennæ, legs and the meso- and meta-sterna are bluish. Abdomen bright red, thickly and strongly punctured.

Hab.—Queensland. Coll. Brit. Mus.

Stigmodera viridicincta, sp. nov.

S. limbato affinis. Capite, antennis, pedibus thoraceque viridibus, hoc flavo marginato; elytris flavis, suturâ pone medium apiceque viridibus, apice quadridentatis; corpore subtus flavo, partibus viridi-cinctis.

Long. 10 lin. ; lat. $3\frac{3}{4}$ lin.

Var.—Thoracis elytrorumque marginibus sanguineis.

Long. $12\frac{1}{2}$ lin. ; lat. 5 lin.

Head thickly and strongly punctured, with a slight fovea on the vertex. Thorax two-fifths wider than long, gently convex, contracted in front, nearly parallel-sided behind the middle, moderately thickly and strongly punctured. Elytra a little more than twice the length of the width of the thorax, not broader than the thorax at the base but a little broader posteriorly and then narrowed to the apex; punctate-striate with the interstices gently convex, sparingly and moderately finely punctured; the posterior half of the suture and the apex are bright green; the apex of each elytron is bidentate, the sutural tooth being the longer. The under side of the insect is yellow, with the exception of the prosternum, the middle of the metasternum, the margins of the coxæ and abdominal segments, which are bright green.

Var.—The sides of the thorax above, and the margins of the elytra, red. The punctures in the striae of the elytra finer and closer. Intermediate and posterior femora lined with yellow.

Hab.—Queensland. Coll. Brit. Mus.

This species is immediately distinguished from *S. limbata* by the teeth at the apex of the elytra. From *S. sanguinea* it is distinguished, besides the difference of colour, by its shorter thorax and elytra, by the regular striae of latter, and by the absence of the large punctures on the third and fifth interstices, &c. *S. Jansoni* is distinguished by its elongate form, by its uniform green underside, and by the teeth at the apex of the elytra being all nearly equal; the elytra have also a tendency to be

infuscated on the disk. There are two specimens in the British Museum of an insect which I have little doubt belong to *S. Jansoni*; they differ only in not having the sides of the thorax yellow. *S. lobicollis* is extremely close to *S. Jansoni*, and I think will probably prove to be only a variety of it; it differs in not having the green on the apex of the elytra and in having a series of large punctures on the fifth interstice of the elytra.

The following insect appears to be sufficiently distinct from *S. limbata* to merit description, although I cannot give it specific rank:—

Stigmodera limbata, var. ?

Viridi-ænea, thoracis lateribus elytrisq; rufis; thoracis marginibus incrassatis; elytris striatis, interstitiis convexioribus.

Long. $9\frac{3}{4}$ — $13\frac{1}{4}$ lin.

Differs from the ordinary form of *S. limbata* in having the margins to the thorax more decidedly thickened, with a tendency to be angular in the middle. The elytra are deep red, with the margins rather paler; there is scarcely any trace of æneous on the suture, and the interstices are more convex than is usual in the ordinary form of *S. limbata*.

Hab.—Queensland and S. Australia. Coll. Brit. Mus.

In the Museum collection there is an insect which I believe to be the female of *S. sanguineocincta*, the type of which is a male. The type specimen has the thorax uniform bright green, with a smooth sutural line slightly raised, and with a transverse smooth line near the front margin. The ♀ has this same peculiarity, but has the sides somewhat incrassated. The elytra are uniform brownish-yellow (without any red margin), and the apex of each elytron is very slightly emarginate; the interstices of the striæ are distinctly but not thickly punctured, whereas they are almost destitute of punctures in the male.

NOTE.—The sculpture of the thorax and elytra in many of the species of *Stigmodera* appears to be of a coarser kind in the females than in the males. This is particularly noticeable in *S. Mitchellii*. Besides the differences of sculpture, the sexes of some species of this genus differ in coloration, *e. g.*, *S. Klugii* has two yellow bands on the elytra in the male, the female having an additional yellow spot on the shoulder. The sexes of *S. Duboulayi* differ

in the same way, the male having no basal fascia on the elytra.

The following beautiful species has lately been brought to England by J. W. Lewis, Esq., of Colonel Warburton's Expedition in S. Australia:—

Stigmodera tricolorata, sp. nov.

Supra flava, nitida; capite, thoracis basi maculâque centrali, elytris fasciâ apiceque viridi-cæruleis.

Long. 12—14½ lin.; lat. 5—5¾ lin.

Head green, thickly punctured. Thorax above, and the sides below, clear yellow with an oval transverse spot on the disk, and the extreme base greenish-blue. The elytra are yellow, with the extreme base, a broad fascia behind the middle, and the apex, bright blue or greenish. Legs and antennæ green. The thorax is transverse, gently convex, with the sides oblique to the posterior two-thirds, and then slightly narrowed to the base, obscurely and moderately thickly punctured. The scutellum is extremely small, bluish-green. The elytra are not very convex, gently narrowed towards the apex, moderately strongly punctate-striate; the interstices very slightly convex, sparingly and obscurely punctured. The apex of each elytron exteriorly obliquely emarginate-truncate.

♂. Discoidal spot on the thorax nearly or quite joining the basal stripe. Under side of body green, with a spot on each coxa, and the abdomen yellow; apical segment of this latter truncate.

♀. Discoidal spot on the thorax smaller. Under side of body green, with a spot on each coxa, and the sides and apex of the abdomen yellow; apical segment of this latter slightly acuminate, rounded at the apex.

Hab.—Nicol Bay, W. Australia. Coll. Brit. Mus.

In build this species most nearly resembles *S. semicincta*; but perhaps it should be placed near *S. Spencei*, although the form of the thorax is very unlike any species of that group.

HETEROMERA.

CYPHALEINÆ.

Cyphaleus quadrispinosus, sp. nov.

Elongatus, convexus, parce pubescens, nitidus, niger; elytris purpureis, suturâ, marginibusque ad apicem viridi-

aureis; capite parvo, crebre punctato, oculis supra approxi-
matis; thorace transverso, longitudine duplo latiori, leviter
convexo, parce punctato, angulis anticis longe porrectis
acutis divergentibus, lateribus leviter rotundatis, angulis
posticis fere rectis, margine postico leviter bisinuato; elytris
thorace paulo latioribus, quadruplo longioribus, convexis,
subparallelis, ad apicem angustatis, fortiter discrete punc-
tatis (punctis magnis, hirtiferis), apice fere lævi, singulis
spinâ nigrâ acutâ armatis; antennis longis, articulo ultimo
piceo; pedibus pilosis, unguiculis piceis.

Long. 8 lin.; lat. $3\frac{3}{4}$ lin.

Hab.—Queensland. Brit. Mus.

NOTE.—I have seen an insect in Mr. Pascoe's collection
which I have little doubt must be referred to this species.
It differs from the above in having the elytra distinctly
longer, and in having them entirely purple. This species
somewhat resembles *Prophanes metallescens*, Westw., but
belongs to *Cyphaleus*.

Cyphaleus insignitus, Pascoe.

The colour of the elytra varies in this species. The
specimen from which Mr. Pascoe drew up his description
has the prevailing colour green. One in the Museum
collection has the elytra purple with blue reflections, and
a second specimen has them entirely purple.

NOTE.—From the two descriptions the following are
evidently synonymous:—

Cyphaleus Mastersii, Pascoe, Ann. & Mag. N. Hist.,
viii., 1871, p. 357.

Cyphaleus chalybeipennis, MacLeay, Trans. Ent. Soc.,
N. S. Wales, 1872, p. 286.

The epipleuræ of the elytra are suddenly narrowed at
the apex in this species, and it should consequently be
placed in the genus *Prophanes*.

Prophanes spinosus, sp. nov.

Elongatus, leviter convexus, nitidus, niger; elytris
viridi-æneis, oblique purpureo-vittatis. Capite crebre
punctato, inter oculos fere lævi; oculis magnis. Thorace
longitudine $\frac{1}{3}$ latiori, leviter convexo, ad latera depresso,
discrete sat fortiter punctato, antice angustato margine
antico utrinque sinuato, angulis anticis longe porrectis
acutissimis divergentibus; lateribus leviter flexuosis (fere

rectis) postice subito rotundato-angustatis; angulis posticis prominentibus, acutis; margine postico in medio late lobato. Scutello nigro, lævi, semicirculari. Elytris thorace paulo latioribus, quadruplo longioribus, ad humeros rotundatis, sat crebre fortiter punctatis (apice lævi); lateribus sub-parallelis, apicem versus angustatis; singulis ad apicem spinâ parvâ armatis. Corpore subtus nigro, lævi; pectoris lateribus punctatis.

Long. 11 lin.; lat. $5\frac{1}{4}$ lin.

The elytra are green, inclined to aeneous at the posterior margin, with a broad oblique purple stripe commencing at the shoulder, and reaching the suture at the posterior two-thirds.

Hab.—Australia. Coll. Brit. Mus.

NOTE.—*Cyphaleus cupricollis*, MacLeay, Trans. Ent. Soc., N. S. Wales, ii., p. 287.

In the British Museum there is an insect which I have no doubt must be referred to this species, Mr. MacLeay is mistaken, however, in describing the anterior angles of the thorax as *obtuse*; they are slightly acute, although not prolonged as in many species of their group. I believe the species is better placed in the genus *Prophanes*.

Platyphanes oblongus, sp. nov.

Oblongus, convexus, nitidus, supra anescens, subtus niger; thorace transverso, crebre punctulato, angulis anticis breviter productis; elytris striato-punctatis.

Long. 11 lin.; lat. $5\frac{3}{4}$ lin.

Head somewhat flattened, thickly, evenly and distinctly punctured all over; clypeus straight in front, obliquely truncated at the anterior angles, which are slightly reflexed. Thorax more than twice as broad as the head, gently convex, moderately, thickly and distinctly punctured on the disk, but finely towards the margins, which are incrassate and slightly reflexed, semicircularly emarginate in front; the anterior angles prominent, blunt and slightly directed outwards; the sides are gently rounded; the posterior angles rectangular; the posterior margin is strongly lobed over the scutellum. The elytra are a little broader than the thorax, of a more distinctly aeneous colour, three and a half times as long as the thorax, with the sides nearly parallel, acuminate posteriorly; each elytron with ten lines

of punctures, the punctures moderately strong and well separated from each other, all the striae become obsolete at the apex. The underside is shining black, the prosternum is compressed into a somewhat sharp keel anteriorly, strongly punctured; the metasternum is sparingly but strongly punctured anteriorly, nearly smooth in the middle. Abdomen thickly and finely punctured. The tarsi are pitchy, densely clothed beneath with ochreous hair.

Allied to *P. gibbosus*, Westw., but more elongate, &c.

Hab.—Australia. Coll. Brit. Mus.

PROCEEDINGS

OF THE

ENTOMOLOGICAL SOCIETY OF LONDON

FOR THE YEAR

1874.

2nd February, 1874.

J. W. DUNNING, Esq., F.L.S., Vice-President, in the chair.

Donations to the Library.

The following donations were announced, and thanks voted to the donors:—‘Proceedings of the Royal Society,’ no. 148; presented by the Society. ‘Proceedings of the Scientific Meetings of the Zoological Society of London for the Year 1873,’ parts i. and ii.; by the Society. ‘Hortæ Societatis Entomologicæ Rossicæ,’ tome ix. nos. 3 and 4; tome x. no. 1; by the Society. ‘The Journal of the Quekett Microscopical Club,’ no. 25; by the Club. ‘L’Abeille, 1874,’ livr. 2, 3 and 4; by the Editor. ‘Appendice aux troisièmes additions au Synopsis des Gomphines;’ ‘Appendice aux troisièmes additions au Synopsis des Caloptérygiens;’ by the Author, M. Edm. de Selys-Longchamps. ‘Monograph of the Collembola and Thysanura,’ by Sir John Lubbock, Bart., &c.: ‘Endomycei Recitati: a Catalogue of the Coleopterous Group Endomycei, with Descriptions of New Species, and Notes,’ by Henry Stephen Gorham; by J. W. Dunning, Esq. ‘Les Métamorphoses des Insectes,’ par Maurice Girard; by the Author. ‘Enumeratio Hemipterorum: Bidrag till en förteckning öfver aller hittills Kända Hemiptera, jemte systematiska Meddelanden;’ ‘Orthoptera nova descripsit C. Stål;’ ‘Carl Henrik Boheman’ [Obituary Notice]; ‘Recherches sur le Système des Mantides;’ by the Author, C. Stål. ‘The Entomologist’s Monthly Magazine,’ for February; by the Editors. ‘Newman’s Entomologist’ and ‘The Zoologist,’ for February; by the Editor. ‘Thesaurus Entomologicus Oxoniensis; or, Illustrations of New, Rare and Interesting Insects, for the most part contained in the Collections presented

to the University of Oxford by the Rev. F. W. Hope, M.A., D.C.L., F.R.S., &c., with forty plates, from drawings by the Author,' by J. O. Westwood, M.A., F.L.S., &c., part i.; by the Author. 'Forestry: Tree-pruning viewed Entomologically;' by the Author, A. Müller, Esq.

Election of Member, &c.

Edwyn C. Reed, Esq., of the Museo Nacional, Santiago de Chile, was balloted for and elected a Member of the Society.

The Right Hon. Lord Dormer, of Grove Park, Warwick, was balloted for and elected a Subscriber.

Exhibitions, &c.

Mr. Müller exhibited the following specimens, which he had found on a recent visit to some limestone caves in the Jurassian Mountains:—

1. A blind Myriapod, found on decayed trunks of trees carried into the cave by floods.

2. A minute Podura, which had, however, become quite shrivelled.

3. A species of Hæmalastor, *Koch* (a genus of Schusselzecken) mentioned by Kolenati in 'Die Parasiten d. Chiroptern' (Dresden, 1857). Mr. Müller did not observe any bats in the cave, but the insect was creeping on one of the stalactites, from which it dropped into his hand. He believed it was the first time that any blind species had been found in the caves of Switzerland.

Mr. Kirby exhibited a specimen of *Lycæna Phœbe*, from Australia, described by the Rev. R. P. Murray, in the 'Entomologist's Monthly Magazine' for October last. It was stated to be closely allied to the insect figured as *Lycæna Erinus* by H.-Schæffer, though probably distinct. The true *L. Erinus*, *Fab.*, is a totally different species from either.

The Secretary read extracts from a letter from Mr. W. D. Gooch, of Spring Vale, Natal, on the destruction of the coffee plantations there by a Longicorn beetle. He stated that they were splitting up the diseased stumps, and that only about two per cent were unaffected. The larvæ bored into the tree between the forks of the root, working into the heart and feeding on the wood, as high up as nine or twelve inches above ground. A specimen of the insect was exhibited, which proved to be *Anthores leucototus*, *Pascoe*. In the bottle with the larvæ were also specimens of *Ceroplesis caffra*, but the former insect was stated to be the cause of the evil. They had split up some 5000 trees, which were diseased, and the only remedy which they had, as yet, tried, was to apply Stockholm tar to the roots: he would be glad to be advised as to the best mode of exterminating the insects. Mr. M'Lachlan remarked that it was very important to ascertain if the insect was really the original cause, or whether, as he believed, the trees were previously diseased. Mr. Müller was of opinion

that the eggs were laid on sound trees, and he added that the maximum time for the appearance of the perfect insect was only about two weeks, and suggested hand-picking as they came out, a practice frequently adopted on the continent of Europe, with regard to *Melolontha*: it was also very desirable to avoid shooting the various species of insectivorous birds, which were frequently destroyed for the sake of their plumage.

Mr. Butler communicated the following in correction of a remark made at last meeting:—

“At the last meeting for scientific business I made remarks respecting *Apatura Herse* and *A. Lycaon*, of Fabricius, which seem to have been entirely misunderstood; I wish, therefore, to state clearly what are my views, in order that I may not be supposed to give in my adherence to Mr. Scudder's views respecting them.

“The synonymy of the American species is, in my opinion, as follows, *viz.*:—

“*Apatura Herse* and *A. Lycaon* of Scudder and Riley (*nec* Fabricius) = *Apatura Clyton* and *A. Celtis* of Boisduval, and are two distinct species.

“*Apatura Herse* and *A. Lycaon*, *Fab.*, are sexes of one species and = *Apatura Alicia*, *Edwards*.

“I have come to this conclusion from an examination of the unpublished drawings of Messrs. Jones and Abbott.”

Paper read.

A paper was communicated entitled “Descriptions of Fifteen new species of Diurnal Lepidoptera, chiefly from South America,” by Herbert Druce, F.L.S.

Mr. Dunning announced with regret the death of Mons. F. E. Guérin-Ménéville, of Paris, one of the Honorary Members of this Society.

16th February, 1874.

Sir SIDNEY SMITH SAUNDERS, C.M.G., President, in the chair.

Donations to the Library.

The following donations were announced, and thanks voted to the donors:—‘Proceedings of the Royal Society,’ no. 149; presented by the Society. ‘Annales de la Société Entomologique de Belgique,’ tome xvi.; by the Society. ‘Entomological Contributions,’ by J. A. Lintner; by the Author. ‘L’Abeille, 1874,’ 4e livr.; by the Editor. ‘The Entomologist’s Annual for 1874;’ by H. T. Stainton, Esq. ‘Additions au Synopsis des

Cordulines,' par M. Edm. de Selys-Longchamps; by the Author. 'Description of a New Genus and Species of Papilionidæ from the South-Eastern Himalayas,' by W. S. Atkinson, M.A., F.L.S., &c.; by the Author.

Election of Members.

Edward A. Fitch, Esq., of Down Hall, Rayleigh; A. Dowsett, Esq., of 16, North-street, Brighton; and James Wood-Mason, Esq., Curator of the Indian Museum of Calcutta, were respectively balloted for and elected Members of the Society.

Exhibitions, &c.

Mr. Weir exhibited a sample of wheat from Australia which was infested with the weevil, *Sitophilus oryzæ*, the cargo being so much damaged that about two tons were utterly useless. The weevil was accompanied by *Læmophlæus ferrugineus*. He also showed specimens of *Sitophilus granarius* and *Rhizopertha pusilla* infesting wheat from Japan.

Mr. Higgins exhibited a collection of *Cetoniidæ* from the Philippine Islands, which had been described by Dr. Mohnike. The collection comprised the following species, with others:—

| | |
|---|-------------------------------------|
| Phædimus Jagori, <i>Gerstäck.</i> , female? | Euglypta attenuata, <i>Mohnike.</i> |
| Coryphocera simillima, <i>Mohnike.</i> | „ biplagiata, „ |
| „ purpurea, „ | Cetonia papalis, „ |
| Clinteria formosa, „ | „ leucogramma, „ |
| Agestrata Semperi, „ | „ purpurisata, „ |
| Macronota propinqua, „ | „ Boholica, „ |
| Glycyphana pulcherrima, „ | „ tenuicollis, „ |

Mr. Higgins was of opinion that unless the male of *Phædimus Jagori* differed from the male of *P. Cumingi*, then the so-called female was only a *var.* of *P. Cumingi*. He also thought that thirty-five or thirty-six out of the forty-two species would in all probability stand good, but that the others would prove to be simply varieties of previously known species. He considered the figures in Mohnike's '*Cetoniden der Philippinischen Inseln*' were so bad as to be unrecognisable, they being wrong in colour and markings.

Mr. Higgins also exhibited specimens of *Diaphonia Digglesii*, *O. Janson*, and *Schizorrhina palmata*, *Schaum*, from Australia.

Mr. F. Smith exhibited (1) a hermaphrodite ant, *Myrmica lævinodis*, captured by Mr. J. Chappel, at Dunham Park, Cheshire: this insect is figured and described in the '*Entomologist's Annual for 1874*;' it combines characters of male, female and worker. (2) Specimens of *Coluocera Attæ*, *Kraatz*, described in '*Berliner Entomologische Zeitschrift, 1858*,' found by Mr. J. Traherne Moggridge, at Mentone, in the seed-magazines of

Aphænogaster (Atta) structor. With reference to the latter Mr. Moggridge writes as follows:—

“I have lately been exploring a very large and far-spreading nest of *Atta structor*, and I find in the abundantly-filled granaries great numbers of the small beetle which I enclose. *Platyarthus* is also very common in the nests. I have never observed this beetle elsewhere, and I do not think it would have escaped me if it had been at all abundant in the nests of *Atta barbara*. I have opened but few nests of *A. structor*, owing to their being usually placed either in terrace-walls or in garden-ground. I spend a great deal of my time now in digging for seeds in ants' nests, as I want these seeds for the experiments I am making in the hope of learning the secret method by which the ants render their seeds dormant at will in damp soil. I am much struck by the frequent occurrence of the nests of trap-door spiders in the very soil of the ants' nests, the spider's tubes often running quite close to, and in the midst of, the galleries of the ants. Ants certainly form a large part of the food of trap-door spiders, and this helps me to understand how it comes that the spiders can get a living without leaving their nests. The spider sits watching at the mouth of her tube, with the door raised very slightly, and then snatches in any insect that may chance to pass within reach.”

The Secretary read some remarks taken from the ‘Times’ and ‘Gardener's Magazine’ on the rapid progress of the Colorado potato beetle (*Doryphora decemlineata*) through the United States and Canada, and the remedy of Paris green, which was stated to have been used with success by the farmers in Canada. The fifteen-spotted ladybird was mentioned as a powerful enemy to the potato-beetle, devouring it in the larva-state. The writer in the ‘Times’ suggested the encouragement of small birds as the best security against the pest; but, as it had been stated that the insects when crushed produced blisters on the skin, whenever they came in contact, and if they touched a wound caused severe inflammation and painful ulcers, Mr. Bates expressed a doubt as to whether the small birds would care to meddle with them. It was, however, a matter deserving of serious consideration, and any practical suggestions for the destruction of the insect would be desirable.

2nd March, 1874.

Sir SIDNEY SMITH SAUNDERS, C.M.G., President, in the chair.

Donations to the Library.

The following donations were announced, and thanks voted to the donors:—‘The Journal of the Linnean Society,’ no. 57; presented by the

Society. 'Bulletin de la Société Linnéenne de Normandie,' 2e Sér., t. vi.; by the Society. 'Bullettino della Società Entomologica Italiana,' t. v., trim. 4; by the Society. 'The Canadian Entomologist,' vol. vi. no. 1; by the Editor. 'Newman's Entomologist' and the 'Zoologist' for March; by the Editor. 'The Entomologist's Monthly Magazine' for March; by the Editors. 'L'Abeille, 1874,' 6e livr.; by the Editor. 'A Synonymic List of British Lepidoptera,' by Henry Doubleday, Second Edition, with Supplement, 1873; by J. W. Dunning, Esq.

Exhibitions, &c.

Mr. M'Lachlan exhibited two male examples of an Orthopterous insect belonging to the family Locustidæ, which had been placed in his hands by Mr. Daniel Hanbury, who received them some years since from his brother at Shanghai. It appeared from Mr. Hanbury's statements that these insects were sold in the streets of Shanghai, confined in little ornamental wicker cages, and bought for the sound they produced. The species appeared to be undescribed, and to pertain to a new genus, somewhat allied to *Xiphidium*. The President remarked that in Turkey a kind of cricket was kept in a similar manner in paper cages and fed upon lettuce-leaves.

Mr. M'Lachlan also exhibited a series of examples illustrating the natural history of *Oniscigaster Wakefieldi* from New Zealand, described and figured by him from the female imago, in the 'Entomologist's Monthly Magazine,' x. pp. 108—110 (October, 1873). He had now received from Mr. Wakefield a second series of specimens, including the male imago, female sub-imago, adult nymph and larva. The lateral wing-like horny expansions of the terminal segments of the abdomen in the imago and sub-imago are continued in the aquatic conditions on each segment of the abdomen, and in addition there are similar formations along the back of the abdomen placed longitudinally and vertically.

Mr. M'Lachlan further remarked that in the Bulletin of the Proceedings of the French Entomological Society, at the Séance of the 28th January last, M. Guenée avowed himself much puzzled concerning the supposed aquatic larva producing a species of moth, described by M. Bar as *Palustra Laboulbenei*, which he considered was allied to the genus *Cnethocampa*. He thought further information very desirable, for all the characters of the insect were opposed to aquatic habits in any stage; and he suggested that the bubbles of air entangled in the hairs might be only expired air.

The Rev. A. E. Eaton exhibited a few Arctic insects which he had brought from Spitsbergen. Amongst others were a Trichopterous insect, probably *Goniotaulius arcticus*, *Boheman*; and also some Lepidoptera, *Plutella cruciferarum*, the larva of which feeds on a species of *Draba* and a species of *Phycita*, near to *sub-ornatella*. They were mostly collected on the

higher parts of the hills, where there was a very small amount of vegetation. He also exhibited several excellent photographs, illustrative of the scenery of those desolate regions; and pointed out some depressions in the ground where patches of stunted willows grew, from which he obtained specimens of a kind of sawfly.

Mr. Champion exhibited a specimen of *Cassida vittata* taken by Mr. Walker near Chatham. The red colour was of peculiar brilliancy when alive, though its brightness had since somewhat faded.

A further communication was received from Mr. J. V. Gooch respecting the injury to the coffee trees in Natal from the Longicorn beetle, *Anthores leuconotus*, *Pascoe*. Mr. Gooch remarked that he was disposed to think that the plants were suffering from fungus before they were attacked by the insect, and stated that the ground into which the coffee-plants had been put contained a large number of decaying roots of the trees which formerly stood there for ages; and that when cleared for planting with coffee, these roots were carelessly left in the ground, though, at the time, there was no idea in the minds of the planters as to any injury being likely to arise from them. He had drawn his son's attention to this point, and he hoped before long to obtain some information which might prove of interest to the Society, and which he would not fail to communicate to them.

Papers read.

The following papers were communicated, *viz.* :—

“On some New Species of South-African *Lycænidæ*.” By Roland Trimen, F.L.S.

“Descriptions of New Species of *Lycænidæ*,” from his own Collection. By W. C. Hewitson, F.L.S., F.Z.S.

New Parts of ‘Transactions.’

Part V. of the ‘Transactions’ for 1873, concluding the volume, was on the table; and also Part I. of the ‘Transactions’ for 1874.

16th March, 1874.

Sir SIDNEY SMITH SAUNDERS, C.M.G., President, in the chair.

Donations to the Library.

The following donations were announced, and thanks voted to the donors :—‘Proceedings of the Boston Society of Natural History,’ vol. xiv., nos. 15—27; vol. xv., parts, 1 and 2; presented by the Society. ‘Bulletin

of the Buffalo Society of Natural Sciences,' nos. 2 and 3; by the Society. 'On the Carboniferous Myriapods preserved in the Sigillarian stumps of Nova Scotia,' by Samuel H. Scudder; by the Author.

Exhibitions, &c.

Mr. Champion exhibited specimens of *Euryporus picipes* taken near Chatham, by Mr. Walker.

Mr. Edward Saunders exhibited a box of Buprestidæ from the Philippine Islands, collected by Dr. Semper.

Mr. Smith directed attention to an article in 'Household Words' of 30th December, 1855, in which a description was given of the ravages of locusts, and stating that the locusts devoured woollen materials and leather, a fact of which he was not hitherto aware.

At the request of Dr. Sharp, the Secretary read the following note:—

"I find that in his Address at the recent Anniversary Meeting of the Society, the late President noticed a pamphlet recently published on the subject of Zoological Nomenclature.

"In this notice the President states that Dr. Sharp proposes to have 'three names for each species.' This statement, however, does not only not represent what I propose, but is calculated to convey such a misconception about my propositions, that I do not think it would be right to allow it to pass without observation from me.

"So far from having 'three names for each species,' it is my object to have but one name for each species. I do not consider it desirable that the classificatory name shall be used at all as a part of the name of a species. And the main object of the pamphlet noted by the learned President is to facilitate the complete separation of species nomenclature from classification nomenclature. Till this object be attained there can be no solution of the nomenclature question; and the only way of obtaining it is either to establish a separate mononymic system of species names, or to adopt the compromise proposed by me."

Papers read.

"Notes on a Collection of Buprestidæ from the Philippine Islands, with Descriptions of New Species." By Edward Saunders, F.L.S.

"Illustrations of several additional Species of Lucanidæ in the Collection of Major F. J. Sidney Parry." By J. O. Westwood, M.A., F.L.S., &c.

April 6, 1874.

Sir SIDNEY SMITH SAUNDERS, C.M.G., President, in the chair.

Donations to the Library.

The following donations were announced, and thanks voted to the donors:—‘Proceedings of the Royal Society,’ no. 150; presented by the Society. ‘Proceedings of the Linnean Society of London, Session 1873—74;’ by the Society. ‘L’Abeille,’ tome ix., livr. 7 and 8; by the Editor. ‘Newman’s Entomologist’ and ‘The Zoologist,’ for April; by the Editor. ‘The Entomologist’s Monthly Magazine,’ for April; by the Editors. ‘Exotic Butterflies,’ part 90: by the Author, W. C. Hewitson, Esq.

Election of Members.

Messrs. W. Garneys, M.R.C.S., of Repton; Philip B. Mason, M.R.C.S., of Burton-on-Trent; and Nathaniel C. Tuely, Esq., of Wimbledon Park, were severally balloted for and elected Ordinary Members.

Exhibitions, &c.

Mr. Frederick Smith communicated to the Society the fact of his having captured seven specimens of *Andrena tibialis*, on Hampstead Heath, on the previous Friday, April 3rd, two being females and five males. One of the females had the exuviae of two males of *Stylops* remaining in the abdomen, the other female had had one male of *Stylops*, and also a female which of course remained in the abdomen of the bee. Of the male *Andrenæ*, one contained two females, a second having one of the same sex remaining in its abdomen. Mr. Smith mentioned this circumstance to give collectors of Coleoptera an opportunity of capturing the rare *Stylops*; and recommended searching for *Stylopized* bees between the hours of nine and twelve in the morning, as, according to his experience, the *Stylops* always emerged from the body of the bee on the day on which the latter first quitted its nest, should the day be bright and sunny; and he also mentioned the fact of his never having captured a bee which had a male *Stylops* remaining in its abdomen, at a later hour of the day than twelve o’clock. He had himself bred *Stylops* five or six times, and had never done so later than the month of April; always having captured the attacked, or infested, bees early in the day. On one occasion he bred a *Stylops* on the same day on which he had captured the infested *Andrena*, conveying the bee home, shut up in a pill-box; then, on arriving home, he had placed the bee in the sun, enclosed in a wooden box having a glass lid; when, in the course of half-an-hour, the *Stylops* quitted the body of the bee. On other occasions he had kept *Stylopized* bees in pill-boxes the whole of the day of

capture, but on placing them in a good-sized glass-topped box, and supplying the bee with a few fresh flowers, the Stylops had emerged early the following morning.

The President remarked that he had once found a large number of bees in the afternoon at dusk, some of which contained male Stylops, but on that occasion the morning had been wet and dull, and therefore the bees had probably only just made their appearance. Some further discussion ensued, during which the President stated that during flight the males do not move the rudimentary anterior wings (or "elytra").

Some further remarks were communicated by Mr. Gooch, of Natal, respecting the ravages of a Longicorn beetle in the coffee plantations there, which gave rise to a discussion as to whether the larvæ of Longicorn beetles attack healthy wood or not, a remark having been made by Mr. Newman in the 'Entomologist' that, according to his experience of fifty years, he had never found the larvæ of Longicorn beetles in decayed wood, or those of Lamellicorn beetles in sound wood. Mr. M'Lachlan stated that from his own observations, healthy wood was not attacked by British species of the family, though there were exceptions, such as *Saperda populnea*. Mr. Smith remarked that he once attempted to sit upon a rail which broke under him, when it was found to be infested with *Rhagium bifasciatum*, and was completely rotten; and the President had experienced the same thing in Turkey with regard to a chair which was destroyed by Longicorn larvæ. Mr. Janson thought that the larvæ of Longicorns do not attack wood, rotten from other causes; but Mr. M'Lachlan understood Mr. Newman's observation to refer to living and healthy trees.

Papers read.

The following papers were communicated, *viz.*:—

"Descriptions of Tenthredinidæ, Ichneumonidæ, Chrysididæ and Formicidæ, from Japan." By Frederick Smith.

"Further Descriptions of Lucanoid Coleoptera." By Major F. J. Sidney Parry, F.L.S.

May 4, 1874.

Sir SIDNEY SMITH SAUNDERS, C.M.G., President, in the chair.

Additions to the Library.

The following donations were announced, and thanks voted to the donors:—'Proceedings of the Royal Society,' no. 151; presented by the Society. 'Verhandlungen der k. k. zoologisch-botanischen Gesellschaft in Wien,' xiii. band; by the Society. 'Proceedings of the Linnean Society of

London,' Meetings 19th March and 2nd April; by the Society. 'Tijdschrift voor Entomologie,' 2nd ser. viii.; by the Entomological Society of the Netherlands. 'Sepp's Nederlandsche Insecten,' 2nd ser. iii. nos. 13—24; 'Schetsen ten gebruike bij de Studie der Hymenoptera,' i.—iv.; by the Author, Dr. S. C. Snellen von Vollenhoven. 'L'Abeille,' tome ix. livr. 9; by the Editor. 'The Canadian Entomologist,' vol. vi. no. 3; by the Editor. 'The Zoologist' and 'Newman's Entomologist' for May; by the Editor. 'The Entomologist's Monthly Magazine' for May; by the Editors.

By purchase.—'Catalogus Coleopterorum hucusque descriptorum synonymicus et systematicus,' auctoribus Dr. Gemminger et B. de Harold, tom. x.

The Entomological Society of the Netherlands presented a well-executed medal, struck in honour of Dr. S. C. Snellen von Vollenhoven, on his retirement from the office of President, which he had held for twenty years.

Election of Members.

G. T. Porritt, Esq., of Huddersfield (hitherto a Subscriber), and Herbert Goss, Esq., of Brighton, were balloted for and elected Members of the Society.

Exhibitions, &c.

Mr. Butler exhibited an example of arrested development in a peacock butterfly, bred from the chrysalis, caused by the tail of the pupa having become detached during the process of emerging; the right wings were completely developed, whilst the left wings had not developed at all, the pupa-case remaining attached to the left side of the body of the butterfly.

Mr. W. C. Boyd exhibited specimens of *Solenobia inconspicuella*, taken in St. Leonard's Forest, and amongst them a specimen, taken at the same time, of a remarkably pale colour, which might possibly be an albino variety, but had a very different appearance from the ordinary form.

Mr. Boyd also exhibited some leaves of the common comfrey (*Symphytum officinale*), gathered at Cheshunt, the under sides of which were found to be completely covered with specimens of *Brachycentrus subnubilus*. There appeared to be some hundreds of specimens closely packed together, and they were all dead, or in a moribund state, when found. All were said to be males, but on close examination a single female specimen was discovered amongst them. No explanation could be given as to the object of their congregating together. Mr. Stainton remarked that there were many such instances of a habit of congregating amongst insects, which were equally unaccountable, and as an instance he mentioned a fact known to all breeders of Micro-Lepidoptera respecting the pupation of the greater number of the Nepticulæ, the larvæ of which live solitary as leaf-miners; but if a number of leaves, containing larvæ, are collected and placed together in a box, it is found that the cocoons are constructed gregariously between certain leaves, without any apparent reason for the preference.

Mr. Charles O. Waterhouse read the following note by Dr. Lamprey, Surgeon-Major of the 67th Regiment, on the habits of a boring-beetle found in British Burmah. A specimen of the insect was exhibited, and also two portions of stem which had been operated upon. The insect was one of the *Bostrichidæ* belonging to the genus *Sinoxylon*.

“On examining the plants in my garden one afternoon, I was struck with what appeared to be an injury done to one of the trees, the name of which I do not know,—this being the winter season, no blossom apparent, and nearly all the plants new to me. The branches of this particular tree are straight, grow upright, and are about half-an-inch to an inch in their diameter. One of the tallest of these branches, which reached to a height of about eight feet, was apparently broken and lying on the other branches as if it was cut or broken off in a mischievous way. I was on the point of questioning the gardener about it, when I observed the leaves of another branch quite withered, and, on taking hold of it to bend it towards me, it snapped in a curiously brittle manner. Looking at where it was broken, I found the stem to be completely severed with a clean division, and that it was only kept together by the thin outer layer of the bark. Examining another branch, I found it snapped in an equally mysterious way, but in doing so a small black insect fell out of the broken part; it was too rapid in its movements, and I lost it. On further examination of the broken parts, and putting them into position again, I found a small circular opening, about the size of the hole in the gall-nut, and concluded that the insect I saw had eaten its way into the stem, and by devouring the wood completely round, and not along its long axis, accounted for the fracture in this particular locality. Since then I have been on the watch to discover the insect, and have succeeded in securing two specimens; one was found in the stem on breaking it across in the position of one of the external apertures: this specimen is somewhat injured by the loss of one of its elytra. The other specimen I found had buried itself so far into the stem as just to leave its posterior part exposed. They are both beetles, about a quarter of an inch in length, black in colour, and have a large head of peculiar shape, well adapted, no doubt, to contain powerful muscles and mandibles for tearing the tough woody fibre of the stem of the plant; but I leave their description to the entomologists. The office these creatures are no doubt intended to fulfil in Nature’s economy is to assist in keeping the tropical vegetation in check. They burrow into the stem of the tree, are rewarded by the sap and nourishment it affords, and are liberated, after performing this task, by a gust of wind snapping the undermined and weakened stem across. They are not found in other trees or shrubs than the one alluded to. The beetle turns on his side while boring, his back being towards the bark; in this manner his form suits the circumference of the stem.”

Mr. M'Lachlan referred to a specimen of a fly (one of the Syrphidæ), which he had exhibited at the meeting of 7th July, 1873, as a strongly-marked instance of gynandromorphism, the sexual organs on the under side of the abdomen being placed on one side instead of the middle. He had since been informed by Mr. Verrall that this was an error, and that the apparent want of symmetry in those organs was usual in the species. Mr. Verrall, who was present, stated that the insect was a male specimen of *Chrysotoxum festivum*.

New Parts of 'Transactions.'

Part II. of the 'Transactions' for 1874 was on the table.

June 1, 1874.

Sir SIDNEY SMITH SAUNDERS, C.M.G., President, in the chair.

Donations to the Library.

The following donations were announced, and thanks voted to the donors;—'Transactions of the American Entomological Society,' vol. ii. nos. 2 and 3; vol. iv. nos. 1—4; presented by the Society. 'Bulletin of the Buffalo Society of Natural Sciences,' vol. i. no. 4; by the Society. 'Bulletin de la Société Impériale des Naturalistes de Moscou,' 1873, no. 3; by the Society. 'Coleopterologische Hefte,' xii.; by the Editor, Baron E. von Harold. 'Berliner Entomologische Zeitschrift,' 1873, 3, 4; 1874, 1, 2; by the Society. 'The Journal of the Quekett Microscopical Club,' no. 26; by the Club. 'The Canadian Entomologist,' vol. vi. no. 4; by the Editor. 'The Entomologist's Monthly Magazine,' for June; by the Editors. 'Newman's Entomologist' and 'The Zoologist' for June; by the Editor. Butler, 'Lepidoptera Exotica,' pt. xx., and 'Cistula Entomologica,' pt. ix.; by E. W. Janson. 'The Lepidoptera of Turkestan, from the Collection of M. Fedtschenko,' by M. Erschoff; by the Author. 'Stettiner Entomologische Zeitung,' vol. xxxv, nos. 1—6; by the Society.

Election of Members.

M. Achille Guenée, of Chateaudun, France, was balloted for and elected an Honorary Member of the Society, in the room of M. Guérin-Méneville, deceased.

Mr. Alan Ogier Ward, of Putney, was balloted for and elected a Subscriber to the Society.

Exhibitions, &c.

Mr. M'Lachlan exhibited specimens of the white ant (*Calotermes* sp.), recently bred at Kew from a sample of the wood of the tree (*Trachylobium Hornmannianum*) that produces the gum copal of Zanzibar.

Mr. Stainton read a letter he had received from the Rev. P. H. Newnham, of Stonehouse, Devon, stating that he had taken two living specimens of *Deiopeia pulchella*, on the opposite side of the river Tamar, in Cornwall. Mr. Stainton remarked on the unusual circumstance of the insect having been captured at such an early season as the month of May.

Mr. Charles O. Waterhouse sent for exhibition a living specimen of a Mantid (*Empusa pauperata*), in the larva or pupa state, brought from Hyères by the Rev. Mr. Sandes, of Wandsworth. The captor stated that he had supplied it with flies, &c., in the hope of ascertaining the mode in which it seized them, but that he could not induce it to eat anything while he was looking on. Mr. Stainton suggested that if he had put a living spider in the cage it would probably have seized it immediately.

The Secretary read the following note, which he had received from Mr. William D. Gooch, of Spring Vale, Little Umhlanga, Natal, respecting the habits of the Longicorn "coffee-borer of Natal:"—

"The egg, as far as we can determine, is laid about the level of the soil, about the middle of December, at a time when the trees look most healthy, are making most wood, and the circulation of the sap is most free, it being also during the damp part of the year. I have, however, despite considerable investigation, been unable to get specimens of the egg, and so watch the development of the larva from the earliest stages.

"Specimens of the larva have already been laid before the members of your Society, but I forward by this post also some specimens.

"In only three cases, about January or December, have I met with any insect in the bark, between the level of the ground and the roots, at all corresponding to the larger insect found in the wood. On examining those trees with larvæ in, with hardly any exception, we discover the bark eaten away, or rather, I should say, wanting about the level of the ground; from this place to the entrance-hole of the borer in the forks of the roots there is always to be observed a more or less irregular channel or road cut in the bark leading from one to the other, and in this channel I discovered two of the three small specimens of larvæ mentioned above. The entrance-hole of the larva is very irregularly placed; sometimes it begins as an excavation along one of the roots at a fork in the rootlets; sometimes it enters immediately under the first root, hardly below the ground. I have not noticed the entrance of the larva above ground, except in two instances, when there was a hole below the lowest primary in one case and the second primary in the other. I did not, however, satisfactorily determine whether these were the same insect, or even if so, they might not be considered as accidental cases. The excavation of the wood of the tree by the larvæ need not be entered into, as every one must be well aware of their powerful mandibles and their unlimited appetites. How long the insect remains in the larva form I have not yet been able to judge; but in consequence of finding always two and

sometimes three distinct sizes in the insects taken out of a hundred trees, I imagine not less than two years, and possibly so long as three. The first transformation at present I have only observed in October; but I am half inclined to think there is a double brood, and another transformation about May: as I was not in the colony at that time last year, having given my attention to the question since July last, I am looking forward next month to deciding this point, as unluckily we have many diseased trees to operate on.

“I enclosed with the larva formerly sent to you a specimen of the pupa; it was first discovered about the beginning of October, and was found till the middle of December. The first perfect insects were found in the beginning of December and the last week in November.

“The imago, from the name, I imagine to be *Anthorea leuconotus*, a longicorn, with the elytra covered with very fine down, almost a bloom, and grayish colour, the bases of the elytra being of a reddish chocolate, with a purplish shot on it when newly emerged. The insect, I think, lies torpid after its complete transformation till some ‘drying day’ comes, when it bores its way out; but what happens to it afterwards I have never been able to discover: only three specimens were found on the whole estate, although I offered sixpence each for them, and we were splitting trees with two and three perfect insects in each of them. When I speak of a ‘drying day,’ I mean one of the ‘hot winds’ from the north-west, which occur in our spring here, taking the thermometer up to 100° in the shade, and considerably affecting insect-life. I noticed especially that the morning after one of these hot winds, on splitting some of the trees, the insects looked so lively that we left off splitting in haste, and gathering the trees together in large heaps burnt them straight off. I said before that only three insects were found at large on the whole plantation by our people; of these two were *in copula* on a primary branch of a coffee-tree, the bark of which had been eaten away. This at once suggested to me whether the female before depositing her eggs may not decorticate a small portion of the trunk for the purpose of depositing? I did not see a single specimen on the wing, and in many cases I found the elytra so hard to open that they seemed soldered; nor could I by exposure to the sun or any other means ever induce the perfect insects to take wing; they always crawled.

“So far I have dealt with the insects; I may now add, in reply to some remarks communicated by you in your minutes, that Mr. Keit, the Botanical Curator of our Gardens here, says that he sees no cause whatever to believe that the trees were at all diseased previous to their being attacked by the insects; nor do they seem specially affected in any way, yielding good crops and looking well till the borer has very often emerged, after which they languish and die rapidly. I hear from other managers, *on strong soils*, that very often on one aspect, N. and N.E., they find the developed grub as much as

90 per cent., but that, in the same valley, the opposite slope, S.W. and S.E. (our cold slopes), the insect is *not* present above 5 per cent, although the mortality of the trees is about the same. From this I gather either that the insect is a secondary cause, or that the cold aspect is not favorable to the development of the insect beyond the stage when they have damaged the bark, and so more or less killed the tree. In slopes it is noticeable that the lowest side of the tree is that attacked, where by washing from rains the more tender bark is exposed, and where very likely the drought cracks it a little. My proposed remedies and *modus operandi* for the prevention of this evil are as follows:—

“1. To remove all trees which are visibly affected before the insect matures. This, through non-comprehension of the cause of disease, was not done, and our estate and the adjoining one have suffered by the presence of so many centres of evil left to take effect upon the surrounding coffee.

“2. About the time the egg or young insect is still in or under the bark, to keep a staff of men rubbing the trees round the roots with iron gloves, or sticks, with sand, so as to crush the insect in its larva-state.

“3. About the time the insect emerges, to keep boys hunting for and picking off the beetle as it adheres to the tree.

“4. To let the same boys search for newly-made holes of emergence, and pass wires, &c., down them, so as to destroy the insects therein, in case the beetle should have the habit of re-entering the hole as a *cache* during the day.

“Your member’s suggestion as to the non-destruction of insectivorous birds is a very good one; but I am afraid they are too few, or rather the insect-life is so immense, that they will not play a very important part in helping us. No one shoots birds in the bush round us.”

Referring to one of the modes adopted by Mr. Gooch for killing the larvæ, Mr. Dunning suggested that rubbing the bark of the trees round the roots, as stated, would hardly have the desired effect, and would probably damage the tree more than the insect. Dr. Horn (of Philadelphia) also doubted the efficacy of the remedy of inserting wires in the holes, which he compared to shutting the stable-door when the steed was stolen. He stated that in Philadelphia a public park had been planted with a great many different kinds of exotic trees, and amongst them were some pines, which were all destroyed by two of their native species, *Callidium antennatum* and *Monohammus dentator*. None of their native trees suffered, but the foreign Coniferæ were killed immediately. Dr. Horn also stated that it was his belief that the Longicorns attack healthy trees, and that the Coniferæ in question had been previously noticed as the finest and healthiest young trees in the park. The lime trees from Europe were also destroyed in a similar manner by hosts of Saperdæ. Mr. M’Lachlan repeated what he

had stated on a former occasion, that European entomologists generally were of opinion that the majority of the European species of Longicorns do not attack living trees while in a perfectly healthy state.

Papers read.

Mr. A. G. Butler communicated a paper entitled "Descriptions of some New Species and a New Genus of Diurnal Lepidoptera in the Collection of Herbert Druce, Esq."

M. Henri Deyrolle communicated some "Descriptions of New Species of Lucanidæ, from the Collection of Major F. J. Sidney Parry."

Mr. Frederick Smith read a paper entitled "A Revision of the Hymenopterous Genera Cleptes, Parnopes, Anthracias, Pyria and Stilbum, with Descriptions of New Species of those Genera and also of New Species of the Genus Chrysis from North China and from Australia." With regard to the genus Anthracias in the above paper, Mr. Smith remarked that a genus had been created by Klug, in the 'Berichte,' under that name, but that the detailed generic characters had not been given, although he had mentioned the essential one,—that of the abdomen being composed above, of only two (visible) segments, instead of three, as in the other Hymenoptera. No mention had been made of it by any other hymenopterist, and nobody appeared to know anything about it; but latterly he had purchased the collection of Mr. Shuckard, and in it he had found a single imperfect specimen, which was undoubtedly belonging to the genus described by Klug. It was mixed with specimens of Parnopes carnea, for which it had no doubt been mistaken, and which it very much resembled.

July 6, 1874.

Sir SIDNEY SMITH SAUNDERS, C.M.G., President, in the chair.

Donations to the Library.

The following donations were announced, and thanks voted to the donors:—'Annales de la Société Entomologique de France,' ser. 5, tome iii.; presented by the Society. 'Proceedings of the Zoological Society of London,' 1873, pt. 4, and 1874, pt. 1; by the Society. 'Proceedings of the Royal Society,' no. 152; by the Society. 'Proceedings of the Boston Society of Natural History,' vol. xii. pp. 369—432; vol. xiii. pp. 1—224; by the Society. 'Fifth Annual Report of the Trustees of the Peabody Academy of Science;' by the Academy. 'Sixth Annual Report of the United States

Geological Survey of the Territories, embracing portions of Montana, Idaho, Wyoming and Utah; being a Report of Progress of the Explorations for the year 1872,' by F. V. Hayden, United States Geologist; 'Our Common Insects, a popular Account of the Insects of our Fields, Forests, Gardens and Houses,' by A. S. Packard, jun.; 'Catalogue of the Phalænidæ of California,' no. 2, by A. S. Packard, jun.; 'Catalogue of the Pyralidæ of California, with Descriptions of new Californian Pterophoridæ,' by A. S. Packard, jun.; 'Synopsis of the Thysanura of Essex County, Mass., with Descriptions of a few Extra-limital Forms,' by A. S. Packard, jun.; 'Further Observations on the Embryology of *Limulus*, with Notes on its Affinities,' by A. S. Packard, jun.; 'Record of American Entomology, for the year 1872,' edited by A. S. Packard, jun.; 'Third Annual Report on the Injurious and Beneficial Insects of Massachusetts made to the State Board of Agriculture,' by A. S. Packard, jun.; all presented by A. S. Packard, jun., M.D.; 'Sixth Annual Report on the Noxious, Beneficial and other Insects of the State of Missouri, made to the State Board of Agriculture, pursuant to an Appropriation for this purpose from the Legislature of the State,' by Charles V. Riley, State Entomologist; by the Author. 'The American Naturalist,' 1872, no. 12; 1873, nos. 1—12; 1874, no. 1; by the Peabody Academy of Science. 'Transactions of the Norfolk and Norwich Naturalists' Society presented to the Members for 1873—4; Supplement, Norfolk Lepidoptera,' by the Author, Charles G. Barrett. 'L'Abeille,' livr. 10—12; by the Editor. 'Exotic Butterflies,' part 91; by W. C. Hewitson, Esq. 'The Canadian Entomologist,' vol. vi., no. 5; by the Editor. 'La Partenogenesi e Semipartenogenesi delle Api per Giotto Ulivi,' by the Author. 'The Entomologist's Monthly Magazine' for July; by the Editors. 'Newman's Entomologist' and 'The Zoologist' for July; by the Editor.

By purchase:—'The Zoological Record for 1872.'

Exhibitions, &c.

Professor Westwood exhibited specimens of *Haltica* (*Batophila*) *ærata*, which he had found to be very injurious to young rose-leaves. Also a portion of a walnut attacked by a Lepidopterous larva, probably a *Tortrix*, but he was unable to name the species, as it produced only an Ichneumon. It was the first instance he had known of a walnut being attacked by any insect in this country. Mr. M'Lachlan suggested that the larva might be that of *Carpocapsa splendana*, a species which usually feeds on acorns; and Mr. Moore stated that he had bred that species from a walnut.

Professor Westwood made some remarks on the Yucca Moth (*Pronuba Yuccasella*, Riley), of which some fifty specimens had been sent to him, in the pupa state, by Mr. Riley; but he had succeeded in rearing only three of them. He exhibited a drawing of a portion of the insect, showing the

peculiar form of the palpi, which were specially adapted for collecting the pollen, which it transferred to the stigmatic surface as the insect passed from flower to flower. He pointed out the great importance of the insect in the economy of nature, as it appeared to be the only agent by which the plant was rendered fertile. He directed attention to a description of the insect and its habits by Mr. Riley, in his 'Sixth Annual Report of the Insects of Missouri.'

Professor Westwood also exhibited some bees which had been sent to him from Dublin, having been found attacking the hives of the honey bees. They were smaller than the honey bee, and black, and he considered them to be merely a degenerated variety of *Apis mellifica*. He suggested the probability of their being identical with the "black bees" mentioned by Hüber. Also Hüber had spoken of bees which he called "Captains," which were furnished with "coronets" on their heads; but he suspected that these coronets might have been merely the pollen which the insects had collected.

Mr. Champion exhibited *Amara alpina* and other beetles taken at Aviemore, in Inverness-shire.

The Secretary exhibited larvæ, pupæ and imago of a Dipterous insect which had been found, in the larva state, in an old Turkey carpet. The larva was very long, slender and serpentiform, white and shining, and had somewhat the appearance of a wireworm, only much longer and without feet. Professor Westwood thought it might belong to the genus *Scenopinus*.

Mr. Bond exhibited some minute parasites from a bat, probably identical with *Argas pipistrellæ*; and also some Acari from a small species of fly: both were from the Isle of Wight.

Mr. W. C. Boyd exhibited two specimens of *Thecla Rubi* from St. Leonard's Forest, differing from the ordinary type in having a pale spot in each fore wing.

Mr. Wormald exhibited a collection of butterflies sent from Japan by Mr. H. S. Pryer.

Mr. W. Cole exhibited leaves of ash affected by some small dipterous larvæ (probably *Cecidomyia*), which caused the two edges of the leaflets to turn upwards and meet above, thus assuming a pod-like form. They were from West Wickham Wood.

Mr. F. Smith exhibited some earthen cocoons found in a salt marsh at Weymouth by Mr. Joshua Brown. They proved to belong to a dipterous insect (*Machærium maritimum*), one of the *Dolichopidæ*. They were found lying on the wet, salt sand or mud, and mostly fell to pieces when touched.

Mr. S. Stevens exhibited specimens of *Agrotera nemoralis* and other Lepidopterous insects from Abbot's Wood, Lewes.

Mr. Butler exhibited a very rare book on butterflies, which he accompanied with the following remarks:—

Notes on Lee's 'Coloured Specimens to Illustrate the Natural History of Butterflies.' (London, 1806.)

“The exceedingly scarce, if not unique, book which has recently come into the possession of Mr. E. W. Janson has not hitherto been quoted in any synonymic catalogue, and as it contains plates and diagnoses of no less than nineteen species, it is important, now that an opportunity has occurred, to record them at once.

Pl. I. *Papilio Hyparete*, Lee = (*Delias*) *Eucharis*, *Drury*. Lee remarks as follows:—‘This specimen does not exactly answer the description of Linnæus, nor yet of Fabricius; yet it comes so near to both that there is no doubt of its being the same, either with some slight variation, or that the colours of the specimen have in some degree changed. The yellowish hue on the upper side of the anterior wings is described by them as being white; nor is any notice taken of the marginal flesh-coloured spots on the extremity of the posterior wings. It will not, however, by any means answer the description of the *Eucharis* of Fabricius: and Drury clearly describes *Hyparete*, as given here, and as mentioned by Fabricius, under the name of *Eucharis*. Linnæus has no fly under the name of *Eucharis*. The insect is in itself extremely beautiful and delicate, and when alive must be very brilliant.’ Fortunately the figure in Clerck’s ‘*Icones*’ sufficiently determines what the *P. Hyperate* (*sic*) of Linnæus is; Fabricius, however, confounded the two species together as Lee has done. Drury figured and described his *P. Eucharis* in 1773; it was first described by Fabricius in 1775.

Pl. II. *Papilio Thersites*, Lee = *Papilio Turnus*, *Linn*. Lee says:—‘Respecting this butterfly, of which Fabricius gives so detailed a description, Linnæus is wholly silent. It was either unknown to him or described under a different name. Indeed it so nearly resembles the *Papilio Machaon* of the latter that it may be considered as a variety of that fly.’ The true *P. Thersites* is so entirely distinct that the ‘detailed description’ of Fabricius seems to have been of very little use to Mr. Lee. I think our American friends will hardly agree with his concluding sentence.

Pl. III. *Papilio Dido*, Lee = (*Colœnis*) *Dido*, *Linn*.

Pl. IV. *Papilio Æneas*, Lee = *Papilio Zacynthus*, *Fabr*.

Pl. V. *Papilio Charithonia*, Lee = (*Heliconius*) *Charithonia*, *Linn*.

Pl. VI. *Papilio Achilles*, Lee = (*Morpho*) *Achilles*, *Linn*.

Pl. VII. *Papilio Plexippus*, Lee = (*Danais*) *Archippus*, *Fabr*. It is doubtful whether the *P. Plexippus*, *Linn*., was not this species.

Pls. VIII. and IX. *Papilio Priamus*, Lee = (*Ornithoptera*) *Priamus*, *Linn*.

Pl. X. *Papilio Phœrusa*, *Lee* = (*Colœnis*) *Phœrusa*, *Linn.*

Pl. XI. *Papilio Demoleus*, *Lee* = *Papilio Demoleus*, *Linn.* *Lee* remarks that this species 'is found both in India and the Cape,' proving that he confounded it with *P. Erithonius*.

Pl. XII. *Papilio Machaon*, *Lee* = *Papilio Machaon*, *Linn.*

Pl. XIII. *Papilio Paris*, *Lee* = *Papilio Paris*, *Linn.*

Pl. XIV. *Papilio Idalia*, *Lee* = (*Argynnis*) *Idalia*, *Drury.*

Pl. XV. *Papilio Leilus*, *Lee* = (*Urania*) *Leilus*, *Linn.*

Pl. XVI. *Papilio Hector*, *Lee* = *Papilio Hector*, *Linn.*

Pl. XVII. *Papilio Polymnestor*, *Lee* = *Papilio Polymnestor*, *Fabr.*

Pl. XVIII. *Papilio* — ? *Lee* = (*Diadema*) *Pandarus* ♂, *Linn.*

Pl. XIX. " " = (*Castnia*) *Evalthe*, *Fabr.*

Pl. XX. " " = (*Diadema*) *Ange* ♂, *Cramer.*

"With regard to Pl. XVIII. *Lee* says:—"It has been said to be the fly mentioned by Fabricius, in the 'Mantissa Insectorum,' under the name of Calisto, No. 459, in the division of Nymphales Gemmati, but the description by no means corresponds with it."

Papers read, &c.

The Rev. H. S. Gorham read a paper descriptive of Endomycid Coleoptera not contained in his Catalogue "Endomycici Recitati." Also some remarks on the Genus *Helota* (Nitidulidæ), and a new species belonging to that genus, from Japan.

Dr. Sharp communicated a supplementary paper on some additional Coleoptera from Japan.

Professor Westwood communicated Descriptions of new Species of Cetoniidæ, principally from the collection of Mr. Higgins, and accompanied by drawings.

The President announced that the Library of the Society would remain for the present at No. 12, Bedford Row, pending the result of negotiations in progress for its removal to more suitable quarters.

New Part of 'Transactions.'

Part III. of the 'Transactions' for 1874 was on the table.

November 2, 1874.

Sir SIDNEY SMITH SAUNDERS, C.M.G., President, in the chair.

Additions to the Library.

The following donations were announced, and thanks voted to the donors:—"Proceedings of the Royal Society," nos. 153—155; presented

by the Society. 'Proceedings of the Scientific Meetings of the Zoological Society of London,' 1874, parts 2 and 3; by the Society. 'The Journal of the Quekett Microscopical Club,' no. 27; by the Club. 'Annales de la Société Entomologique de Belgique,' t. xvii. fasc. 1; by the Society. 'Bulletin of the Buffalo Society of Natural Sciences,' vol. ii., no. 2; by the Society. 'Stettiner Entomologische Zeitung,' 1874, nos. 7—9; by the Society. 'Boletin de la Academia Nacional des Ciencias Exactas existente en la Universidad de Cordova,' entrega i., ii.; by the Academy. 'Bulletin de la Société Impériale des Naturalistes de Moscou,' 1873, no. 4, and 1874, no. 1; by the Society. 'Proceedings of the Linnean Society of London (Session 1873—74); by the Society. 'Memoires de l'Académie Royale des Sciences, des Lettres et des Beaux-Arts de Belgique,' t. xl.; by the Academy. 'Bulletins de l'Académie Royale des Sciences, des Lettres et des Beaux-Arts de Belgique,' Ser. 2, t. xxxv. and xxxvi.; by the Academy. 'Mittheilungen der Schweizerischen Entomologischen Gesellschaft,' vol. iv., Heft no. 5; by the Society. 'Proceedings of the Boston Society of Natural History,' vol. xv. pts. 3 and 4; vol. xvi. pts. 1 and 2; by the Society. 'Memoirs of the Boston Society of Natural History,' vol. ii., part ii., no. iv.; part iii., nos. i. and ii.; by the Society. 'The Transactions of the Linnean Society,' vol. xxviii., part 4; vol. xxx., part 1; by the Society. 'The Canadian Entomologist,' nos. 6—8; by the Editor. 'Smithsonian Miscellaneous Collections—Monographs of the Diptera of North America,' part iii., by H. Loew; by the Smithsonian Institution. 'L'Abeille,' 1874, livr. 13 and 15—18; by the Editor. 'Iconographie et Description de Chenilles et Lépidoptères, inédits par P. Millière,' t. iii., livr. 33 and 34; by J. W. Dunning, Esq. 'The Entomologist's Monthly Magazine,' August—November; by the Editors. 'Newman's Entomologist' and 'The Zoologist,' August—October; by the Editor. 'Exotic Butterflies,' part 92; by the Author, W. C. Hewitson, Esq. 'Observations on Bees and Wasps,' by Sir John Lubbock, Bart., F.R.S., M.P., F.L.S., Vice-Chancellor of the University of London; by the Author. 'On a New Genus and Species (*Hylaocarcinus Humei*) of Land Crabs from the Nicobar Islands,' by James Wood-Mason, of Queen's College, Oxford; by the Author. 'Canons of Systematic Nomenclature for the Higher Groups;' 'Fossil Insects from the Rocky Mountains;' 'The Curious History of a Butterfly;' 'The two Principal Groups of Urbicolæ (*Hesperidæ*, auct.);' 'Note on the Species of *Glaucopsyche* from Eastern North America;' 'Tentamen determinationis Digestionis atque Denominationis Singularum Stirpium Lepidopterorum, peritis ad inspiciendum et dijudicandum communicatum, a Jacobo Hübner;' by the Author, S. H. Scudder.

By purchase:—'Catalogus Coleopterum hucusque descriptorum Synonymicus et Systematicus, autoribus Dr. Gemminger et B. de Harold;' tome xi. Chrysomelidæ (pars i.).

Exhibitions, &c.

Mr. Stevens exhibited three specimens of *Deiopeia pulchella*, taken at Arundel and Deal, and a *Noctua* from Dover that he had not been able to identify.

Prof. Westwood remarked that the late Lieut.-Gen. Sir J. B. Hearsey had frequently observed *D. pulchella* to be very destructive in gardens in different parts of India. He also stated of the specimens of *Pronuba Yuccasella* sent to him by Mr. Riley from Missouri, as noticed at last meeting, several of them had emerged from the pupa-cases a few days after, and the remainder had continued to emerge during three months. He further remarked that he had recently seen the collection of *Lepidoptera* of Herrich-Schæffer, now in possession of his son Dr. Schæffer, of Ratisbon, but that, unfortunately, they had been so much neglected that the greater part were in the worst condition. The collection of *Tortrices* formed by the late Herr Fischer v. Röslerstamm were, however, still in good preservation. At Geneva he had visited the new buildings erected for the scientific collections; but those buildings having been erected in the old moat of the town, he regretted to observe that the unarranged portions of the collections, which were deposited in the lower floors, had suffered in consequence from damp. The collection of *Coleoptera* formed by M. Melly, being on the upper floor, were in good order.

Mr. Bird exhibited specimens of the following rare *Lepidoptera*, *viz.*:—

1. *Sesia culiciformis*. Bred from pupæ obtained at Rowhill Wood, near Bexley. The usual type with the red band across the body is not uncommon, but those exhibited had the band yellow. Mr. Bird had bred several this and last year, and in both years the proportion was almost exactly the same, *viz.* one yellow to every twenty-five with the red band.

2. *Limacodes asellus*, with pupa-case. Bred (for the first time) from pupæ found by a friend at Marlow, Bucks, attached to the leaves of the beech.

3. *Nola albulalis*. Taken near London.

4. *Nonagria brevilinea*. Taken at Horning Fen, Norfolk. This appears to be a scarce insect; two of the specimens exhibited were without the characteristic short line at the base of the wing.

5. *Pterophorus rhododactylus*, with pupa-case. Bred.

Mr. Jenner Weir exhibited specimens of *Mantis religiosa*, with two of the egg-cases, taken by himself at Meran, in Tyrol, in September last.

Mr. McLachlan exhibited a printer's block (such as is used for printing posting-bills) attacked by a species of *Anobium*, and he was informed that the insect was causing serious damage to the printer's stock of these blocks.

The wood was believed to be pear-tree. He had recommended soaking the blocks in a mixture of carbolic acid and water.

Papers read, &c.

Dr. Sharp communicated "Descriptions of New Genera and Species of Pselaphidæ and Seydmænidæ from Australia and New Zealand." The paper contained descriptions of forty-four new species, three of them belonging to the family Seydmænidæ. Of the forty-one species of Pselaphidæ, twenty-six were from Australia and fifteen from New Zealand, the latter being the first specimens of Pselaphidæ that had, as yet, been obtained from New Zealand. He believed that the islands would prove to be rich in Pselaphidæ, and alluded to the great scientific importance of an accurate knowledge of the New Zealand fauna, and to the special importance of gaining as rapidly as possible a knowledge of the existing Coleoptera, as such knowledge would contribute largely to the solution of many important scientific questions; and as a large proportion of the species were confined to small areas of distribution there was great reason to fear they would be easily killed out, and thus the fauna itself would disappear with the changes caused by colonization and the cultivation of the soil.

Mr. Darwin communicated a paper containing remarks by M. s. Barber, of Griqualand, South Africa, on the colour of the pupa of *Papilio Nireus*, in connection with the surroundings of its place of attachment, the pupa appearing to assume a protective resemblance to the surface to which it is fixed, and suggesting that some photographic influence might be at work. A discussion ensued, in which Professor Westwood, Mr. M'Lachlan and others took part; and Mr. Meldola remarked, in reply to Mr. M'Lachlan, that the action of light upon the sensitive skin of a pupa had no analogy with its action on any known photographic chemical. No known substance retained permanently the colour reflected on it by adjacent objects. Mr. Meldola further observed that there was no difficulty in believing that larvæ might become affected in colour by the colouring matter of the food-plant, since chlorophyll in an unaltered condition had been found in the tissues of green larvæ. Facts of this nature did not, however, exclude the possibility of the action of Natural Selection in such cases, for the property of showing the colour of the tissues through the skin, if of advantage to the species, would be preserved through this agency, as already discussed in a paper published in the Proc. Zool. Soc. for February, 1873.

The Secretary read a letter he had received from Mr. Ogier Ward, enclosing a drawing of a spider's nest, with some remarks thereon by Mr. Charles O. Waterhouse. Mr. Ward had found the nest attached to some long grass in a quarry near Poissy, on the Seine. Mr. Waterhouse, on examination, found it to be nearly filled with sand, but in the centre he found "a dry, rough, flat piece" attached to the base, which on soaking in

water for some hours, he discovered to be filled with a number of minute spiders measuring one-twelfth of an inch. The granules of sand were held together and to the inner-bag by fine threads of web. He believed the object of the sand was to prevent the case being blown away, but he was not aware to what species the nest appertained.

Mr. W. F. Kirby contributed a review of Dr. Boisduval's "Monographie des Agaristidées," published in the 'Revue et Magasin de Zoologie,' 1874, pp. 26—110. He directed attention to the absence, in Dr. Boisduval's arrangement, of the genera *Mania* and *Larunda*, *Hüb.* (*Sematura* and *Coronis*, *auct.*), the former of which has been placed by all authors close to *Nyctalemon*, and at times even included in the genus.

Mr. Butler communicated "Descriptions of three new Species and a new Genus of Diurnal Lepidoptera from the collection of Andrew Swanzy, Esq."

Mr. Charles O. Waterhouse contributed "Notes on Australian Coleoptera, with descriptions of new Species."

The Rev. R. P. Murray communicated "Descriptions of some new Species of Butterflies belonging to the Genus *Lycæna*." He added thereto some remarks on the species furnished with spots on the anal angle of the hind wing, and also on those furnished with tails—neither of which characters he considered sufficient to afford generic distinctions.

November 16, 1874.

J. W. DUNNING, Esq., M.A., F.L.S., Vice-President, in the chair.

Donations to the Library.

The following donations were announced, and thanks voted to the donors:—'The Journal of the Linnean Society,' Zoology, no. 58: presented by the Society. 'The Canadian Entomologist,' vol. vi., no. 9; by the Editor. The 'Zoologist' and 'Newman's Entomologist' for November; by the Editor. 'L'Abeille,' tome xi., livr. 19; by the Editor.

Election of Subscribers.

R. E. Bull, Esq., of 85, Milton-street, Dorset-square; F. Fitch, Esq., of Hadleigh House, Highbury New Town; and H. D'Arcy Power, Esq., of 8, Manor-terrace, Camberwell, were elected Subscribers.

Exhibitions, &c.

Mr. Higgins exhibited some rare species of Cetoniidæ from Borneo, *viz.* *Lomaptera Higginsii*, *O. Janson*, and a remarkable Dynastiform insect

named by Count Castelnau, *Westwoodia Howittii*. Also two smaller specimens which had been supposed to be females of the last-named species, but were, more probably, females of an insect of which the male was unknown.

The Secretary exhibited a collection of fine species of Lepidoptera, forwarded by Mr. W. D. Gooch, from Natal, for determination.

The Rev. O. Pickard Cambridge sent a note on the curious spider's nest exhibited at the last meeting. It was unknown to him, and had it not been for a remark in Mr. Ward's letter implying that the nest he found belonged to a symmetrical (geometrical) web, he should have conjectured that it was the work of an *Agelena*. If, however, the nest was appurtenant to a symmetrical web it must belong to a spider of the family *Epeirides*. He did not think the sand in the nest was at all designed as ballast, but as a protection against the heat of the sun (sand being a non-conductor) and also against parasites. Mr. Smith remarked that the mud-coating of the nest of *Agelena brunnea* did not preserve that species from parasites, as he had often bred a species of *Pezomachus* from the nests, and he believed, in those instances, the spider's eggs had been attacked before the mud-coating was added.

Mr. Champion exhibited some rare species of British Coleoptera, *viz.*:—*Apion Ryei*, taken by Mr. Lilley in Shetland; *Abdera triguttata*, from Aviemore, Inverness-shire; *Lymexylon navale*, taken by Messrs. Sidebotham and Chappell at Dunham Park, Manchester; *Athous subfuscus*, taken by the Rev. T. Blackburn in Shetland; and *Apion sanguineum* and *Silvanus similis* from Esher.

December 7, 1874.

Sir SIDNEY SMITH SAUNDERS, C.M.G., President, in the chair.

Donations to the Library.

The following donations were announced, and thanks voted to the donors:—‘Bulletin of the Buffalo Society of Natural Sciences,’ vol. ii., no. 1; presented by the Society. ‘Monthly Reports of the Department of Agriculture,’ for the year 1873; by the Department. ‘A Handbook of the Coleoptera, or Beetles, of Great Britain and Ireland,’ 2 vols.; by the Author, Herbert E. Cox, M.E.S. ‘Le Phylloxera de la vigne, son organisation, ses mœurs, choix des procédés de destruction avec gravures et cartes;’ by the Author, Dr. M. Girard. ‘Descriptions and Natural History of two Insects which brave the dangers of *Sarracenia variolaris*,’ by Chas. V. Riley, M.A., Ph.D.; by the Author. ‘A Monographic Revision and Synopsis of the Trichoptera of the European Fauna,’ by Robert

M'Lachlan, F.L.S., &c., part 1; by the Author. 'L'Abeille,' livr. 20—22; by the Editor. 'The Entomologist's Monthly Magazine' for December; by the Editors. 'Newman's Entomologist' and 'The Zoologist' for December; by the Editor. 'Thesaurus Entomologicus Oxoniensis,' parts 3, 4; by the Author, Prof. Westwood. 'Lettre concernant des calculs trouvés dans les canaux biliains d'un Cerf-volant femelle (*Lucanus capreolus*),' par M. V. Audouin; 'Colcoteri della Sicilia raccolti e possedati da Baldissare Romano;' by F. Moore, Esq.

Election of Members.

Lieut. H. C. Harford, 99th Regt., Charles C. Dupré, Esq., and Owen Wilson, Esq., were balloted for and elected Members; and Major Greenwood, Esq., a Subscriber to the Society.

Exhibitions, &c.

Mr. E. A. Fitch exhibited some oak-galls of *Dryocosmus cerriphilus*, *Gir.*, *Aphilothrix globuli*, *Hart.*, *A. albopunctata*, *Schl.*, and *A. callidoma*, *Hart.*, all described in the October number of the 'Entomologist's Monthly Magazine,' p. 109; together with three curious bud-galls, unknown, from Rayleigh, Essex.

Mr. Champion exhibited an interesting collection of Hemiptera, brought from the Mediterranean by Mr. J. J. Walker. Amongst them were *Trigonosoma Desfontainei*, from Cagliari; *Phyllomorpha laciniata*, from Gibraltar; and *Prionolytus Helfer*, from Tangier.

Prof. Westwood forwarded a letter he had received from Mr. J. F. M. Harris Stone, accompanying a sample of tea imported from Shanghai, infested by a small beetle which proved to be the *Ptinus hololeucus*, an insect belonging to a genus, the species of which feed indifferently on dried vegetable as well as animal matter.

Prof. Westwood also communicated a letter from Prof. Forel, of Lausanne, stating that the *Phylloxera vastatrix* had made its appearance among some vines at Pregny, in the canton of Geneva, which had been introduced from England into the graperies of Baron Rothschild, and that the *Phylloxera* had been discovered in two of his greenhouses, among vines planted in 1869, sufficiently distant from each other to render it improbable that the insect had been communicated one from the other; and he therefore concluded that the disease had been introduced in 1869 from the graperies in England. The vines so attacked had, however, not succumbed to the disease, but were simply rather weaker than those which had not been attacked. He was, therefore, anxious to ascertain whether the vines in the English graperies were less influenced than those out of doors; but none of the Members present were aware of the occurrence of the insect in England out of doors, but that it had hitherto appeared in greenhouses only.

Mr. C. O. Waterhouse communicated the following "Synonymical Notes on Longicorn Coleoptera:"—

"Fam. PRIONIDÆ.

Acanthophorus Palinii, Hope. This species was placed by Mr. Adam White, with doubt, as *Acanthophorus Yolofus* of Dalman, and in Gemminger and Harold's 'Catalogue of Coleoptera' they are placed together without even a doubt. There being, however, in the British Museum a species of *Tithoës* (to which genus *A. Palinii* must now be referred), which I believed to be the true *A. Palinii*, I referred to Prof. Westwood, who kindly sent to me a sketch of Hope's type in the Oxford Museum, confirming my determination, and making it certain that *A. Yolofus* and *A. Palinii* are quite distinct species. *Tithoës Palinii* resembles *T. confinis*, but is shorter; the eyes are much approximated above; the thorax is broadest in front, with the anterior spine strong (much longer than the lateral spine), and very much recurved; the elytra are marked much in the same way, but the apex of each elytron is less rounded and there is a small tooth at the sutural angle. Length 1 inch 10 lines; width 8 lines. Habitat, Sierra Leone.

Acanthophorus capensis, White. This species is correctly placed in that genus, and does not belong to *Tithoës*, as placed in Gemminger's Catalogue.

Mallodon gnatho, White. This insect must be placed in Lacordaire's genus *Nothopleurus* (Gen. d. Col. viii. p. 125). As nothing is said by Lacordaire about the form of the mandibles in the description of *N. ebeninus*, it will probably prove to be a species distinct from *M. gnatho*, which has a remarkably large triangular tooth on the upper edge at the base of each mandible. The thorax of *M. gnatho* has parallel sides.

Tragosoma subcoriaceum, Hope, female, 1831. The male of this insect was described in 1867 by Mr. Pascoe, under the name *Sarmyds antennatus*.

Fam. CERAMBYCIDÆ.

Eburophora, White (*Eburigera*, Gemm. & Harold, Cat. p. 2899). This genus should be placed next to *Sophron*, Newm., and *Sophron eburatus*, Pascoe, should be transferred to it.

Trichoxys flexus, Chev., 1860 = *Clytus melanotelus*, White, 1855. (Types compared.)

Anthoboscus figuratus, Pascoe, 1869 = *Clytanthus marginalis*, Chev., 1863. (Types compared.)

Anthoboscus leucothyreus, Pascoe, 1869 = *Clytanthus austerus*, Chev., 1863. (Types compared.)

Clytanthus oppositus, Chev., 1863 = *Clytus signaticollis*, Lap. & Gory, but with the pubescence rubbed off the abdomen; it is not a synonym of *C. japonicus*, as suggested by Mr. Bates, Ann. & Mag. Nat. Hist., 1873.

Clytus Protogenes, Newman. This is not a synonym of *Chlorophorus annularis*, as placed in Gemminger's Catalogue, but belongs to the genus *Acrocyrta*, with the third and fourth antennal joints (and fifth slightly) spined; it is very closely allied to *Acrocyrta strangaloides* of Pascoe.

Xylotrechus famelicus, Pascoe. This species, for which Mr. Pascoe had no locality, is from Borneo.

Clytus dominula, White, is a *Xylotrechus*, closely allied to *C. Grayi*, White, and is not a *Rhaphuma*, as placed by Chevrolat.

Clytus subcruciatus, White, is a *Calanthemis*.

Clytus Phidias, Newman, is not *Xylotrechus australis*, Lap. & Gory, as placed in Gemminger's Catalogue, but it is closely allied.

Clytus Mouhotii, Pascoe, 1869 = *Clytus semiluctuosus*, White, 1855.

Eriphus leucogrammus, White = *Pœciloderma lineolatum*, White, and belongs rather to this latter genus."

January 4, 1875.

Sir SIDNEY SMITH SAUNDERS, C.M.G., President, in the chair.

Donations to the Library.

The following donations were announced, and thanks voted to the donors:—'Proceedings of the Royal Society,' no. 156; presented by the Society. 'Boletin de la Academia Nacional de Ciencias exactas existente en la Universidad de Cordova,' Estrega III.; by the Academy. 'Stettiner Entomologische Zeitung,' xxxv., nos. 10—12; by the Society. 'The Canadian Entomologist,' vol. vi., no. 10; by the Editor. 'L'Abeille,' t. xi., livr. 23; by the Editor. 'Newman's Entomologist' and 'The Zoologist' for January; by the Editor. 'The Entomologist's Monthly Magazine' for January; by the Editors. 'Illustrations of Diurnal Lepidoptera,' part vi., *Lycænidæ*, by William C. Hewitson; by the Author. 'Descriptions de plusieurs Neuroptères-planipennes et Trichoptères nouveaux de l'île de Célèbes et de quelques espèces nouvelles de Dipseudopsis, avec considérations sur ce genre,' par M. R. M'Lachlan; by the Author. 'Note sur les caractères d'une larve d'insectes Orthoptères de la famille des Ephémérides (genre *Cænïs*),' par le Docteur Emile Joly; by the Author. 'Note sur les Géotrupides qui se rencontrent en Belgique,' par A. Preudhomme de Borre; by the Author. 'On the Insects more particularly associated with *Sarracenia variolaris* (spotted trumpet-leaf),' by Charles V. Riley; by the Author. 'Un Parasite de Cheiroptères de Belgique (*Nycteribia Frauenfeldii*, Kol.),' par M. Félix Plateau; by the Author.

Exhibitions, &c.

Mr. Stevens exhibited varieties of *Diloba cæruleocephala* and *Hibernia defoliaria*, bred from larvæ taken near Brighton.

Mr. Smith exhibited a fine collection of Hymenopterous insects forwarded from Calcutta by Mr. Rothney. Amongst the Formicidæ were *Polyrachis bicolor* and *Dorylus longicornis*. Amongst the Fossores were *Mutilla sexmaculata*, *Pompilus dorsalis*, *Sphex sericeus*, *Chlorion lobatum*, *Ampulex compressa*, *Ammophila nigripes*, *Trirogma cærulea*, *Larrada aurulenta* and *Bembex lunata*. Amongst the Vespidæ were *Eumenes petiolata*, *E. conica*, *E. flavopicta*, *Rhynchium transversum*, *R. argentatum* and *Vespa cincta*. The specimen of *Rhynchium transversum* had been attacked by *Stylops*. There were also (of Apidæ) two new species of *Nomia*—one of them with capitate antennæ—and a new species of *Nomada*. Also several small, undescribed species of bees of the genera *Prosopis*, *Halictus* and *Ceratina*; and a fine series of *Stelis carbonaria*. The whole were in beautiful condition.

Mr. M'Lachlan stated that one evening, about thirty-six hours after the breaking up of the recent intense frost, he had noticed the December moth (*Cheimatobia brumata*) attracted in great numbers to the gas-lamps in the neighbourhood of Lewisham, and that in some instances there were as many as a dozen on one lamp. Mr. Boyd mentioned a case that had come under his observation of that insect having been picked up, apparently dead, on the snow, and that it had revived on being placed in a warm room. Mr. Butler also noticed a similar fact in regard to a specimen of *Pieris rapæ*. Mr. Jenner Weir made some remarks on the importance of ascertaining whether the insects noticed by Mr. M'Lachlan were hibernated specimens or whether they had been newly hatched when he observed them.

The Secretary read a letter he had received from Mr. R. S. Morrison, of George Town, Colorado, expressing a wish to be placed in communication with any entomologists who might be interested in the investigation of insect faunas of the higher altitudes (8,000 to 14,000 feet).

The Secretary exhibited a bottle containing a number of specimens of a Mantis, about half an inch long, which had been forwarded to him from Sarawak by M. de Crespigny, who was under the impression that they were perfect insects; but on examination they appeared to be only young larvæ. He observed them crossing the table at which he was sitting, and at first sight they had the appearance of a column of ants.

New Part of 'Transactions.'

Part IV. of the 'Transactions' for 1874 was on the table.

ANNUAL MEETING,

January 25, 1875.

Sir SIDNEY SMITH SAUNDERS, C.M.G., President, in the chair.

An Abstract of the Treasurer's Accounts for 1874 was read by Mr. Jenner Weir, one of the Auditors, showing a balance of £186 10s. 7d. in favour of the Society.

The Secretary read the following:—

Report of the Council for 1874.

In accordance with the Bye-Laws, the Council presents to the Society the following Report.

During the year twelve Members or Subscribers have been elected, but nineteen names have been removed from the list. Amongst the deaths is that of our senior Honorary Member, Professor Zetterstedt, in his ninetieth year.

The volume of 'Transactions' for 1874 contains twenty-eight memoirs by eighteen authors, extends to 548 pages, exclusive of the 'Proceedings,' and illustrated by eleven plates, six of which are coloured. Every paper read at the meetings during the year is included in the volume. There is, however, a total absence of papers on British or European insects, which is much to be regretted.

The Council had made arrangements for the publication of a fifth portion of the 'Catalogue of British Insects' (intended to form a first part of the Coleoptera), but they were unfortunately prevented from carrying out their intention in consequence of the withdrawal of the manuscript by the author, when on the point of going to press. They hope, however, to replace it by a portion of the Hemiptera, which it is expected will appear in the spring of this year.

No composition in lieu of Annual Subscription has been received during the year, consequently the reserved fund is not increased.

The tabular Statement of Receipts and Payments shows the following result:—

| RECEIPTS. | | PAYMENTS. | |
|----------------------------------|-------|----------------------------------|-------|
| | £ | | £ |
| Contributions of Members | 228 | Library | 4 |
| Sale of Publications | 62 | Publications | 223 |
| Interest on Consols | 5 | Rent and Office Expenses | 56 |
| | | Tea at Meetings | 14 |
| | <hr/> | | <hr/> |
| | £295 | | £297 |
| | <hr/> | | <hr/> |

Thus the expenditure has slightly exceeded the receipts, and the cash balance is reduced from £2 1s. 3*d.* to £0 8s. 7*d.* When, however, the number of expensive coloured plates is taken into consideration, and also the fact that the fourth part of the 'Transactions' was not published until the end of December, and that consequently no part of the proceeds of the sale thereof could appear in the year's accounts, it will not be considered an unfavourable statement.

It will be seen that the Council have not in any way increased the Library of Books. In the present unsatisfactory state of their Library, caused by the utterly insufficient accommodation in Bedford Row, they felt that it would be useless to expend any more money on books until they had a fit place in which to deposit them. They preferred, in the mean time, to spend what money they had in publications.

It is with much regret that the Council have to report the failure of the negociation for obtaining permanent accommodation for the Library in connection with the Linnean Society, it having been ascertained that the whole space in the rooms is required by the latter Society for their own large and increasing library. The apartments in Bedford Row are only held by this Society until midsummer next; consequently the future destination of our Library will be the first and most important question for the consideration of the new Council. It is to be hoped that before the close of the present session they will be able to remedy this long-standing evil.

25th January, 1875.

The following gentlemen were elected Members of Council for 1875:— Sir Sidney Smith Saunders, Messrs. W. C. Boyd, A. G. Butler, G. C. Champion, J. W. Dunning, F. Grut, R. M'Lachlan, R. Meldola, F. Moore, Rev. R. P. Murray, F. P. Pascoe, F. Smith, and J. J. Weir.

The following officers were elected for the year 1875:— President, Sir Sidney Smith Saunders, C.M.G.; Treasurer, Mr. R. M'Lachlan; Secretaries, Messrs. F. Grut and A. G. Butler; Librarian, Mr. E. W. Janson.

The President read the following Address:—

PRESIDENT'S ADDRESS.

GENTLEMEN,

In addressing you on the Anniversary Meeting of a new year, in accordance with time-honoured custom, I must premise that the records of the one which has just terminated exhibit no lack of energy in our ranks; whether we look to the memoirs which have appeared in our Transactions; to the various contributions made to the publications of other Societies and periodicals by many of our members; or to those separate works to which I shall specially advert in the sequel;—all evincing unflagging zeal and activity in the literature and progress of Entomology.

The Report which the Council has laid before you, and which has already made you fully acquainted with all the details of our financial administration, renders it needless for me to enter into any of these matters.

The want of more suitable and extended accommodation for our Library has long been felt, and would, doubtless, have more forcibly impressed itself upon our attention at an earlier period, but for the expectations we had been led to entertain from a project of affiliation with the Linnean Society, to which your attention was invited by a circular in the month of April last, whereby the opinion of our members was solicited on the preliminary details of such an arrangement, as therein set forth.

A large majority of our Society having signified their assent to this project, it remained for our Council, in conjunction with that of the Linnean Society, to discuss the preliminaries of such a bond of union; but it having been subsequently ascertained that no disposable space was available for our books, the project has necessarily been abandoned. It therefore becomes incumbent upon us to provide for our requirements in some other way; the Linnean Society having, in the meantime, courteously extended

the privilege, conceded for many years past, of allowing our meetings to be held in their rooms at Burlington House.

Nevertheless, although closer communion has not proved feasible, it would seem only consistent with those amicable tendencies which these initiatives have served to develope, that more intimate relations should be established between the two Societies, united as they are by so many ties of affinity and ancestral origin. When, therefore, we may be enabled to offer corresponding advantages by rendering our Library more generally accessible, the same principles which have actuated a system of reciprocity, as regards the libraries of several other Societies, may not impossibly be extended to us. In any case, however, it behoves us to provide, for the convenience of our members, a more complete printed Catalogue than we now possess in those issued in 1861 and 1864. It would also be desirable to render our "Proceedings" more valuable, by inserting therein, as practised by the French Entomological Society, not only the titles of the serial publications presented from time to time, but also a bibliographical summary of their contents; and if, moreover, a classified list of all the Papers published in our Transactions during the first forty years (from 1835 to 1874 inclusive) were available for purchase, to be continued at the close of each decennial period, this might be expected to present many attractions, and concentrate the attention of Entomologists in this country to our Society as to a common focus.

We have to thank our Secretary, Mr. Grut, and his coadjutors, for the diligence displayed in the issue of the respective Parts of our Transactions during the past year with unexampled promptitude: the first being on the table at our meeting of the 2nd March, together with the Index-part of the previous year; the second, on the 4th May; the third, on the 6th July; and the fourth, on the 2nd of this month; leaving only the supplementary details to be supplied, together with five additional Plates,—making a total of eleven, whereof six are coloured.

When, indeed, it is considered that these Transactions are supplied and forwarded gratis to all members and subscribers residing beyond fifteen miles from London, and that all others can obtain a copy at half the price of publication, it would seem that, if these advantages were sufficiently known to be duly appreciated, our "List of Members" should constitute a Postal-

Guide to the names and addresses of every recognised Entomologist in the United Kingdom, and a standard authority for reference on all occasions.

I would, however, venture to anticipate that, by the establishment of our Library in a more commodious site, by bringing the same into juxtaposition with our meeting-room, and by improving the opportunities of consulting our books in these and other respects, the additional expenses thereby incurred will be amply compensated by such an influx of new members as will serve to inaugurate a new era of prosperity in connexion therewith.

OBITUARY.

During the period aforesaid Entomology has had to deplore the loss of several distinguished devotees, to whose memory a tributary record is due on the present occasion.

Dr. JOHAN WILHELM ZETTERSTEDT, Professor of Zoology at the University of Lund, born the 20th May, 1785, who died on the 23rd December last, in his ninetieth year, as announced at our last meeting, was elected an honorary member of this Society, April 7th, 1851. His 'Fauna Insectorum Lapponica,' published in 1828, and his 'Insecta Lapponica descripta,' in 1840, together with other publications of merit, served to render his name conspicuous, ere he commenced his great work in fourteen volumes, intituled, 'Diptera Scandinaviæ disposita et descripta,' published in eleven consecutive years, from 1842 to 1852, with subsequent additions thereto in 1855, 1859, and 1860, when his advanced age appears to have prescribed a termination to his literary career.

Dr. HERRICH-SCHIEFFER, of Ratisbon, another veteran among European Entomologists, died on the 14th April, 1874, aged seventy-five. Among his earlier productions we may note the continuation of Panzer's celebrated 'Fauna Insectorum Germanica,' which he carried on for several years; but his magnificent work, 'Systematische Bearbeitung der Schmetterlinge von Europa,' in six quarto volumes, illustrated with a vast number of plates, the greater part coloured, commenced in 1843, and completed in 1856, will best serve to immortalize his name. Unfortunately, his collection, as stated by Professor Westwood at one of our recent meetings, has been left in a deplorable condition, the type specimens literally falling to pieces from lapsing periods of infirmity and neglect.

GEORGE ROBERT CROTCH, who was elected a member of this Society in 1865, died at Philadelphia, while yet in the prime of life, on the 16th June, 1874, aged thirty-three. As an authority among Coleopterists he had long occupied an eminent position. Of the Coleoptera belonging to the British Fauna he published a new arrangement in 1863, followed by a revised edition in 1866. To our Transactions for the year 1870 he contributed two papers of laborious research on "The Genera of Coleoptera treated Chronologically;" the first (1735—1801) commencing with the earliest edition of the 'Systema Naturæ;' the second (1802—21) embracing the period of Latreille, giving as far as possible the types of all the genera proposed within the respective periods, with synonyms when required. This was followed by a more elaborate list (in 1871) of all the Coleoptera belonging to the primary section Adephaga, described from 1758 to 1821, with references to their modern genera. After treating of several other groups, Mr. Crotch left this country for the United States, in the autumn of 1872, where various memoirs by him on different sections of North American Coleoptera were published by the Academy of Natural Sciences of Philadelphia, and by the American Entomological Society. He subsequently extended his researches to some of the least visited parts of the North American continent, from whence he returned in broken health to Philadelphia,—the result of climatic influences, to which he eventually succumbed. A 'Revision of the Coleopterous Family Coccinellidæ,' which he had prepared for publication, has recently issued from the London press.

FRANCIS WALKER, one of our most indefatigable Entomologists, who was elected a member of this Society in 1850, and whose numerous publications attest his incomparable zeal and assiduity, died on the 5th October, 1874, in his sixty-sixth year. His 'Monographia Chalciditum' was commenced at an early period of his life (1832) in the first pages of the 'Entomological Magazine;' and he ever afterwards maintained his predilections for this very remarkable parasitic tribe. His second important work was the 'Insecta Britannica, Diptera,' in three octavo volumes, published from 1851 to 1856. Antecedent to and concurrent with this, and long subsequent thereto, he devoted a considerable portion of his time and attention to the compilation of an extensive series of Catalogues of various orders of insects in the National Museum,

comprising descriptions of a large number of new genera and species, which, commencing in 1848, were continued to the early part of the present decade. He also from time to time described in our Transactions (1857—1862), in the 'Journal of the Linnean Society,' and in a separate form ('Insecta Saundersiana'), a large selection of insects of various orders from the collection of Mr. W. Wilson Saunders, in addition to frequent contributions to our own and other Transactions and periodical publications; more especially to the 'Zoologist' and 'Entomologist,' continued in the latter up to the very month of his demise. A posthumous paper by him, containing "Descriptions of New Genera and Species, belonging to the Families Proctotrupidæ and Chalcididæ, which attack Insects destructive to the Fig in India," has also appeared in the 'Entomologist' of the present month, and some others in the 'Cistula Entomologica' (*vide post*).

Dr. ANTOINE DOURS, of Amiens, who died on the 23rd July, 1874, at the age of fifty, was a diligent collector of Hymenoptera, to which his attention was first directed when serving in Algeria in a military capacity. He was the author of a 'Monograph on the Genus Anthophora,' published at Amiens in 1869; of a paper containing 'Descriptions of New Genera and Species of Hymenoptera from the South of Europe,' which appeared in the 'Revue et Magasin de Zoologie' of August, 1872; and of a 'Synonymic Catalogue of the Hymenoptera of France,' published in 1874. His extensive collection of insects of this order, chiefly from Europe and Algeria, in addition to those formerly belonging to Dr. J. J. Giraud, chiefly European, comprising together (as lately announced for private sale) upwards of seventy-eight thousand specimens, said to be in excellent preservation, would be a valuable acquisition to any public museum.

In addition to these losses we have also to lament the death of Mr. JOHN TRAHERNE MOGGRIDGE, F.L.S., whose instructive volume on 'Harvesting Ants and Trap-door Spiders,' with a Supplement thereto, which has just appeared, bear testimony to his persevering industry and attention in investigating the provident instincts and economy of these interesting races. He died on the 24th November last, aged thirty-two, at Mentone, whither he was accustomed to resort during the winter months for the benefit of his health.

ECONOMIC ENTOMOLOGY.

The ravages of the *Phylloxera vastatrix*, and the remarkable incidents connected with the life-history of this minute but formidable enemy of the viculturists, have been the subject of many interesting communications to the Académie des Sciences of Paris and to the French Entomological Society during the past year.

Among the innumerable remedies which have been advocated and tested as a means of checking the progress of this scourge, the only treatment hitherto recognised as absolutely effective is the submersion of the vineyards, where practicable, during one month in winter, which has been attended with perfect success.

The principal facts ascertained in connexion with the biology of these destructive Homoptera may not be undeserving of some notice, considering the vast proportions which their propagation and extension have now assumed.

The young larvæ, which hybernate on the roots of the vine, whether derived from the autumnal sexual races adverted to in the sequel, or (as it would seem) from antecedent broods, commence laying eggs in the early spring, their progeny producing and reproducing in continuous succession by parthenogenesis, as usual among the Aphides, though, unlike these, always oviparous. Among these successive broods some individuals never acquire wings; while others, becoming more elongate, quit the earth as pupa-nymphs, furnished with rudimentary alary appendages, emerging in the winged state from July to September.

But the development of the race does not terminate here, on attaining the winged condition. In an interesting memoir, 'Sur le *Phylloxera ailé* et sa progéniture,' M. Balbiani has shown that these winged females (to which no males are ascribed) deposit their eggs, limited from two to five, amid the down of the young vine-leaves, when in captivity; from which eggs an apterous sexual race is derived, as previously described by him (in 1873) in the case of the *Phylloxera* of the oak (*P. Quercus*, Fonscolombe), these eggs being of two different dimensions, the larger producing females and the smaller males, both sexes destitute of organs of nutrition, the promuscis being reduced to a short flattened tubercle, and the female having the third article of the antennæ pedunculated.

The same diligent observer has more recently ascertained that the subterranean brood of the Phylloxera of the vine is also continued from year to year by a similar sexual race, which appears later than that derived from the winged type (about the middle of October), but perfectly identical therewith, the females of both producing only a single egg (*l'œuf d'hiver* of Balbiani); whereby, in the one case, the continuity of the race is maintained for several years upon the same root until this is entirely exhausted; while, in the other, by the intervention of the winged type, new colonies are dispersed far and wide.

M. Balbiani also states that certain abnormal forms, occasionally found mingled with the winged type, noticed by him in several other species and formerly considered as males, are rather to be regarded as females with atrophied characters, somewhat analogous to the neuters of social Hymenoptera.*

Some strange theories, however, have been propounded by M. Lichtenstein, as to certain phases in the genetic cycle of the race, whereby it is alleged that the winged Phylloxera of the vines resorts to the Kermes oaks (*Quercus coccifera*) to deposit—not eggs but—*pupæ*, from which such sexual race is developed as aforesaid; this winged type being characterized as “Androphores” and “Gynéphores,” according to the sex of the *pupæ* deposited by these so-called “flying cocoons.”

M. Balbiani, however (on examining other specimens taken by himself), maintains that the author of this startling hypothesis has confounded two distinct species; that alluded to as aforesaid being, as he conceives, a new species (to which he gives the name of *P. Lichtensteinii*),† differing from *P. vastatrix* in all stages of development, including that of the sexual race; while the manner in which it had been sought to explain the return of the progeny of the latter from the oaks to the vines, by means of a second supposititious winged-type, would be contrary to all the analogies of the genus.

M. Lichtenstein demurs to these conclusions and repudiates the name given by M. Balbiani, alleging:—

1. That the species adverted to by the latter is not new, being his *P. Rileyi*, described also by Kaltenbach (in 1873) under the name of *P. corticalis*:

* Compt. Rend., 21 Sept., 1874; p. 687.

† Ibid., 14 Sept., 1874; p. 645.

2. That this is not the species which he had found on the Kermes oak :

3. That although the former subsists on the *Quercus Robur*, he expects to prove next year that both this species and the *P. vastatrix* resort to the *Q. coccifera* to deposit their *pupæ* : and—

4. That he has found another species sparsely associated with these on the same oak and nurtured thereon, being met with not only in the winged form, but also in the larval and pupal stages (distinguished by having two cylindrical and retractile tubercles between the antennæ), on which he confers the name of *P. Balbianii*.*

With respect to the galls on the under side of certain vine-leaves, less frequently met with in France than in America, and having a fimbriated aperture from above, Mr. Riley, the State Entomologist of Missouri, has long since shown (Third Report, 1871) that the autumnal individuals emanating from these galls descend to the roots, as subsequently verified by M. Signoret and others; and more recently Mr. Riley† has obtained a leaf-gall (which, however, subsequently proved abortive) from one of the root-infesting type, which he defines as *radicicola*, in contradistinction to the other, which he designates as *gallæcola*. These galls, tenanted by an agamic apterous race which never acquires wings (formerly attributed to the ovipositing winged females), Mr. Riley is now disposed to ascribe to the young hatched on the roots, more extensive experience having satisfied him that the presence of the *gallæcola*-type is not the invariable precursor of the *radicicola* in an uninfected vineyard, nor in anywise essential to the continuance of the species. The same author, in a paper recently read before the Académie des Sciences (December 14th), enumerates sixteen well-defined species of *Phylloxera* indigenous to North America; whereof only one is found on the vines, and one (*P. Rileyi*) on the oaks; the others being chiefly met with on different species of *Carya*.

It is, moreover, worthy of remark that M. Signoret has informed the French Entomological Society (Sept. 23) that he still possesses a potted vine, whereon his first experiments were made in 1869; that every year he places on this vine the *Phylloxeræ* which are sent him, whether of the root or leaf-gall type; and

* Compt. Rend., 5 Oct., 1874; p. 783.

† Sixth Report, 1874, p. 44; and App. 12, p. 69.

that this vine is *still alive*, in spite of the Phylloxeræ upon its roots; retaining its verdure, though not in very thriving condition from having been five years in the same earth and the same pot.

A species of *Acarus* (*Tyroglyphus Phylloxeræ*, *Riley*), which preys upon the root-inhabiting type, has been discovered by Mr. Riley in America, whereof colonies are being introduced into France; but (as Mr. Riley considers) any expectations founded thereon are "doomed to disappointment." The *T. echinopus*, described by Dr. Fumoze and Prof. Ch. Robin in 1868, has also been found on the French vines (*Ann. Soc. Ent. Fr.*, p. xcix., 1874).

Another species of *Tyroglyphus*, met with abundantly on *Fungi*, more especially on the *Agaricus campestris*, has been the subject of an interesting communication by M. Méguin, published in the Paris 'Journal d'Anatomie et de Physiologie,' intitled "Mémoire Anatomique et Zoologique sur un nouvel Acarien de la Famille des Sarcoptides, le *Tyroglyphus rostro-serratus*, et sur son *Hypopus*," showing that the latter is but an adventitious nymph-form of the former, which the octopod-nymphs assume by moulting, when the *Fungi* become desiccated, resuming their previous nymph-condition by another moult on the moisture being renewed. This incidental heteromorphosis not extending to other stages, the hexapod-larvæ and adults are doomed to perish under such circumstances, while the occult-nymphs, in their *Hypopus* coat-of-mail, attach themselves to any insects that come in their way, for conveyance to another suitable abode, whereby the continuance of the race is provided for.

A similar transmutation has been observed by MM. Riley and Planchon in the *Tyroglyphus Phylloxeræ*.

The Colorado potato-beetle (*Doryphora decem-lineata*) is an enemy whose rapid advances towards the shores of the Atlantic threaten an invasion into Europe at no distant day. Mr. Riley points out how these destructive insects, when once established on the sea-board, may wing their way to vessels in port, being accustomed to fly in swarms, and may thus be borne over to found a colony in this country, irrespective of conveyance with the tubers themselves, which they are stated to devour greedily when dug up, several having been found ensconced in a single potato. Mr. Riley suggests that Agricultural and Horticultural

Societies should make provision for the dissemination of correct information respecting these insects; and that specimens of the beetles themselves should be obtained for distribution, with the view of familiarizing persons with their aspect and of preventing their diffusion.

The importance of some efficient measures being adopted for this purpose can hardly be overrated, in default of which this scourge must assuredly be expected to follow in the wake of the Phylloxera, the Oïdium, and other noxious importations from the same quarter. Mr. Riley's reiterated remarks on this head have a somewhat prophetic significance, when calling to mind that "in giving, through Sir Walter Raleigh, the precious tuber to Europe, America conferred upon the Old World an everlasting boon. She may yet unwittingly be the means of bequeathing as great a bane, by sending across the ocean the deadliest enemy of that tuber. At all events it behoves our European neighbours to be on the look-out, and to prevent, if possible, any such catastrophe."

The attention of the Académie des Sciences has just been drawn to this subject by the French Minister for Commerce and Agriculture.

The British Bee-keeper's Association, instituted in May last, "for the encouragement, improvement and advancement of Bee-Culture in the United Kingdom," under the Presidency of Sir John Lubbock, held its first exhibition at the Crystal Palace in September last. This institution is calculated to confer important benefits upon the rural population by diffusing information as to the most approved principles of Apiculture, in the management of the hives, the collection of the produce, the preservation of the combs, and other matters, whereby the most profitable results may be obtained, thus holding out encouragement to many who have been deterred from embarking in such a lucrative enterprise by apprehensions of incompetency; or who, having done so, have not known how to turn the resources of this vicarious industry to the best account. 'The British Bee Journal and Bee-keeper's Adviser,' published monthly and now far advanced in its second volume, affords a useful medium of inter-communication upon this subject.

HABITS AND INSTINCTS.

Two interesting communications from Herr Fritz Müller to Mr. Charles Darwin have appeared in 'Nature' (Nos. 225 and 237), in the former of which the writer, treating of the natural history of the Brazilian Termites, states that he has come to the same conclusion as Mr. Bates with respect to the neuters,—namely, that these are not sterile females, but modified larvæ, which undergo no further metamorphosis; that, in some species of *Calotermes* the male soldiers may even externally be distinguished from the female soldiers; and that in the company of the queen there always lives a king, as observed by Smeathman a century ago, but doubted by most subsequent writers. He has also recognised the existence of two forms of sexual individuals; the one, consisting of *winged* males and females, produced in vast numbers and leaving the termitary in large swarms; the other, of *wingless* males and females, which never quit the spot where they are born.

A similar result would appear to be attained thereby, as in the case of the winged and wingless sexual races of the Phylloxera, already referred to, the former serving to disperse the race; the latter to continue the labours of the original colony by successive broods.

The writer subsequently adverts to another "interesting group of social insects, the stingless honey-bees, *Melipona* and *Trigona*." He mentions that in *Melipona* wax is secreted "on the *dorsal* side of the abdomen," instead of on the *ventral*, as in hive-bees; that the *Meliponæ* and *Trigonæ* "fill their cells with semi-digested food before the eggs are laid," and that they close the cells "immediately after the queen has dropped an egg on the food;" whereas, in the hive-bee, the eggs are laid in nearly empty cells, which the workers close with wax when the adult larvæ, which they have been feeding, are about to undergo their pupa-metamorphosis.*

At a recent meeting of the French Entomological Society (December 9th), a paper on the habits of the Brazilian *Meliponæ* and *Trigonæ*, by M. Maurice Girard, was read (although not yet published), from which it would appear that one of the former

* Réaumur, 5 Mém. xi. pp. 575, 584.

group establishes its nest in the interior of termitaries, living in amicable relations with a species of Termites.

A new species of Brazilian Trigona, whereof the queen, males and workers have been described by Herr Hermann Müller under the vernacular name of *T. cagafogo** ('Nature,' Nos. 193 and 237), is "supposed" to imitate some of the Formicidæ, in milking the larvæ of certain Membracidæ belonging to the Homopterous genus *Potnia* of Stål, to which, in the absence of Aphides, the ants of Brazil have recourse for the purpose of imbibing the saccharine fluid, which the former also emit.†

Sir John Lubbock has communicated to the Linnean Society, on two occasions during the past year, the results of some highly interesting observations made by him "On the Habits of Bees, Wasps and Ants," his experiments having for their object to test the extent to which the social Hymenoptera may be enabled to communicate with each other. The deductions to be drawn from these experiments would seem to be of a character to dissipate much of the fantasy with which this subject has been invested by those writers who have attributed to such communities the employment of "*some kind of language*" as a medium of inter-communication. But in ascribing such faculties to these co-operating colonies, it may be conceived that (speaking figuratively) more was never intended to be implied than the habitual employment of certain symbols for intelligible purposes;‡ and that none of these writers ever intended to assume that any of these interesting races could exercise the power of describing localities or of communicating facts, without acting as pioneers to their companions, and (as Huber says) *bringing* others to such localities. §

As an instance of this nature, I may mention a circumstance in which similar evidences were elicited. A *Polistes* nest having been brought to me full of feeding larvæ, with a single specimen of the imago brood, I placed this nest, together with its solitary occupant, outside a window, but within the exterior Venetian blinds corresponding with those of three floors of several con-

* Quoted by Spix and Martius; *vide* St. Fargeau, Hym. i. 413.

† Westwood, Mod. Classif. of Ins., vol. ii. pp. 234 and 434.

‡ Kirby and Spence, *Introd. to Entom.*, vol. ii., p. 27 (5th Edit.).

(P. Huber), *Ibid.*, p. 30.

§ *Journal of Linn. Soc.*, No. 58, Nov. 1874, p. 112.

secutive houses, covering the nest at first with a tumbler, which was removed during the night; and in the morning the *Polistes* proceeded in search of her companions, bringing back with her two others to assist in feeding the larvæ. Some means of intimating to her associates the object of her apparition, and of urging them to trust to her lead, must doubtless have been made available on this occasion; but that she should have been enabled to define the particular window, among so many, where the nest remained concealed from view, and prevail upon the others to accompany her on such a strange and unaccountable expedition to a remote and unnatural locality for the discovery of the lost nest, could only have been accomplished by the exercise of a considerable amount of intelligence and communicative instinct. That these *Polistes* belonged to the original brood could scarcely be doubtful, as all others would have returned to their respective domiciles; but, as corroborative evidence thereof, I added some strangers to the party from other nests taken elsewhere, and these intruders were at once attacked and driven away.

This nest (now exhibited with some of its occupants *in situ*) is remarkable from having been constructed, to some extent, of the macerated paper of play-bills of different colours posted in the vicinity, as shown in the tinted layers of the respective cells.

Sir John Lubbock has pointed out, on a former occasion,* that the sounds produced by the wing-vibrations in Hymenoptera vary according to circumstances; that "a tired insect produces a somewhat different note from one that is fresh, on account of the vibrations being slower;" that this "change of tone is evidently under the command of the will, and thus offers another point of similarity to a *true voice*;" that "a bee in the pursuit of honey hums contentedly on Δ' , but if it is excited or angry it produces a very different note;" and that thus the sounds of insects "serve, *like any true language*, to express the feelings."

He also remarks that "as even we, far removed as we are in organization, habits, and sentiments, from a fly or a bee, can yet feel the difference between a contented hum and an angry buzz, it is highly improbable that their power of expressing their feelings should stop here;" and that "one can scarcely doubt that they have thus the power of conveying other sentiments and ideas to one another."

* President's Address to Ent. Soc., 1868.

In the case of these *Polistes* (without diving too deeply into their mysterious endowments in this respect) we may readily conceive the rapturous excitement manifested by the new comer from the lost domicile, as compared with the lassitude and despondency exhibited by the lorn home-seekers; nor can we err in assuming that, after the customary greetings of recognition on the deserted site, some conscious allurement must have been imparted to the latter to induce them to confide in such cogent invocation to follow the former; her object being attained as though her motives had been enunciated by *voice* or *language*, and her summons conveyed through such a medium.

The fertilization of flowers by insects (treated in several additional papers in 'Nature' by Messrs. Hermann Müller and T. H. Farrer) has also been the subject of a very remarkable Address by Sir John Lubbock, before the British Association, at Belfast, showing their mutual dependence upon each other, and pointing out how the sustenance afforded to the latter is requited by the transfer of pollen essential to the existence of the former, while calling attention to many structural peculiarities exhibited on either side admirably adapted for this purpose.

But in discussing the mouth-parts and legs among the bees and wasps, upon which considerable stress is laid, as exemplifying modifications of these parts from an ancestral type, it should not be lost sight of, that such suitable adaptation of organs to the requirements of the several races alluded to, is associated with many characteristic distinctions in the veining of the wings, coinciding with other relations of lineage and affinity, and furnishing, together with the aforesaid organs, premonitory indications of differences in habits and economy.

"That the mouth of *Prosopis*" (one of the solitary bees) "probably represents the condition of that of the ancestors of the hive-bees before their mouth-parts underwent special modifications;" and that this "may be inferred from the fact that the same type occurs in other allied groups, as shown in the mouth of a wasp" (our "*Polistes*," to wit); is a deduction scarcely reconcilable with those divergences in alary structure between the respective groups, which are altogether independent of functional development, and of those influences for adaptational purposes which have been held to determine the survival of the fittest.

FOSSIL ENTOMOLOGY.

M. E. Oustalet has published a work, intituled, 'Recherches sur les Insectes Fossiles des terrains tertiaires de la France,' the first part of which relates to those of Auvergne; the second to those of Aix, in Provence. This work is illustrated with twelve plates, containing upwards of two hundred figures of insects described in the text. These (with the exception of one appertaining to the Staphylinidæ) are classified under already recognised genera, whereof the names are given in a summary, which has appeared in the Bulletin of Proceedings of the French Entomological Society of the 14th of October last, showing that in the specimens from Auvergne the Diptera and Coleoptera greatly preponderate over those of other orders; while as regards those from Aix, in greater abundance, M. Oustalet's observations have been confined for the present to the Coleoptera alone.

On comparing the results thus chronicled with those recorded by Mr. Scudder in the 'American Naturalist' for November, 1872, as obtained from the tertiary deposits of the Rocky Mountains of Wyoming, we find that here also "Diptera and Coleoptera are the prevailing forms," comprising "nearly six-sevenths of the specimens and more than five-eighths of the species;" and that "of the Coleoptera, fully one-half of the species, and about seven-tenths of the specimens, belong to the Curculionidæ; the others mostly to the Staphylinidæ and Carabidæ."

Of the Coleoptera described by M. Oustalet from Auvergne, out of nine genera two belong to the Dytiscidæ and Hydrophilidæ, and all the rest to the Curculionidæ. Of those cited from Aix, consisting of eighty-four species described and figured (whereof fifty-four new to science), divided into fifty-one genera, the Curculionidæ are again the most numerous, comprising eighteen genera, the Staphylinidæ and Carabidæ following these in numerical proportions (represented by nine genera of the former and seven of the latter); to which succeed the Palpicornia and Phytophaga (four genera of each), with nine genera belonging to other families, not exceeding two in each.

Few insects of other orders were obtained from Auvergne; namely, of Orthoptera, the fragments of a single species; of Neuroptera, specimens of *Libellula*, *Ascalaphus* and *Phryganea*;

of Hymenoptera, one of the group allied to Anthophora; and of Lepidoptera, one of the Noctuidæ.

Mr. Scudder's specimens of other orders were also very limited.

Mr. A. G. Butler has published some remarks in the 'Geological Magazine' (October, 1874) in reply to Mr. Scudder's criticisms respecting the wing of a fossil butterfly, described by the former (l. c. January, 1873) under the name of *Palaontina oolitica*, which the latter considers to belong rather to one of the Cicadinæ.

NEW PUBLICATIONS, MEMOIRS, &c.

Professor Westwood has completed his magnificent work in four parts, quarto, commenced towards the end of 1873, under the title of 'Thesaurus Entomologicus Oxoniensis,' containing "illustrations of new, rare, and interesting insects, for the most part contained in the collections presented to the University of Oxford by the Rev. F. W. Hope, with forty plates from drawings by the author;" comprising upwards of three hundred exquisite figures of insects described in the text. The Coleoptera, occupying almost the whole of the two first parts, consist of certain groups, whereof the Goliathidæ (a splendid South African species of which adorns the first plate), the Cremastocheilidæ, and the Paussidæ, are most deserving of notice; a complete monograph of the second being given, with ninety-one figured species (plates xi.—xiv.); and of the singular family Paussidæ, fifty-four species, occupying five entire plates (xv.—xix.), are here figured for the first time, together with many other curious Coleoptera. The Hymenoptera comprise a large assortment of remarkable groups and species appertaining to the families Tenthredinidæ, Siricidæ, Evaniadæ, Cynipidæ, Chalcididæ, and Proctotrupidæ (plates xx.—xxxi.); the remainder of the work being assigned to insects of various orders,—Orthoptera, Neuroptera, Lepidoptera, and Hemiptera; together with some singular apterous groups (plates xxxvii.—xl.).

This noble work is a well-merited testimonial to the value of the Hopeian collection and its adjuncts, no less than to the liberality of the donor, in endowing a Professorship of Zoology in connexion therewith; while, in the execution of this design, the University must deem itself peculiarly fortunate in being enabled

to avail itself of the well-known accuracy and ability of such an illustrator of world-wide repute.

A 'Handbook of the Coleoptera of Great Britain and Ireland,' in two octavo volumes, has lately been published by Mr. Herbert E. Cox, containing short descriptions from authentic sources of all the hitherto-recorded species of British beetles; each tribe, family, and genus, being conveniently tabulated, and its prominent characters indicated. In constituting two primary sections of *normal* and *aberrant* Coleoptera, the latter being confined to the Stylopidae, as differing in the development of the prothorax, other changes have been effected, whereby the Erotylidae, Coccinellidae, and Endomychidae, have been associated with the Clavicornia; the Phytophaga (including the Bruchidae) occupying an intermediate position between the Rhynchophora and the Longicornia, followed by the Heteromera, placed at the end of the "normal" section, terminating with the Rhipiphoridae, Meloïdæ, and Œdemeridæ. With respect to the latter, the lignivorous habits of the larva would seem to point to a greater affinity with some of the other Heteromera, wherewith they were formerly associated by Latreille; the position here assigned to them disturbing the natural associations existing between the Rhipiphoridae, the Meloïdæ, and the Stylopidae, coinciding in parasitic habits and in their derivation from pediculiform primitive larvæ.

The present descriptive compendium, printed in excellent type, will be deservedly welcomed and appreciated by all Coleopterists in this country, as supplying a want which has long been experienced for the ready determination of many genera and species whose definitions are widely dispersed among works often little accessible.

Two parts of a work in quarto, commenced long since, bearing the title of 'Zoology of the Voyage of H.M.S. Erebus and Terror, under the command of Captain Sir James Clark Ross, during the years 1839 to 1843,' and edited by Dr. John Richardson and Dr. John Edward Gray, have been completed during last year, being the entomological portion of the series (Nos. XIX. and XX.).

The first of these parts is accompanied by ten plates of various orders of insects; these plates having been prepared, and some of them issued, together with a portion of the present letterpress, at

a former period. It comprises a list of the then recorded insects from New Zealand and the Auckland Islands, with descriptions of new species, whether brought home by the officers of the Expedition or obtained from other sources; the Coleoptera and Orthoptera by the late Adam White; the other orders by Mr. A. G. Butler, who, in an intermediate preamble to the Lepidopterous section (p. 28), explains the circumstances under which a complete list of all the known species of the latter from these localities has been supplied by him. The second part contains the Crustacea, with four plates; the text by Mr. Edward J. Miers, of the British Museum, although most of the species here figured have been already described by Mr. Adam White in various publications.

Another volume of somewhat similar character, containing forty-six excellent coloured plates of moths collected in various regions by the Austrian "Novara" Expedition prior to 1862, has just appeared; the letterpress, by Rogenhofer, being promised shortly.

Our Transactions for the past year have furnished many additions to our knowledge of the insect fauna of Japan, chiefly derived from the collection made in that country by Mr. George Lewis, comprising memoirs on—

1. The Staphylinidæ, consisting of one hundred and ninety species, the greater part new; by Dr. Sharp.
2. The Pselaphidæ and Scydmenidæ; by the same author.
3. The Phytophaga (continued from 1873); by Mr. Baly.
4. The Tenthredinidæ, Ichneumonidæ, Chrysididæ, Formicidæ, &c.; by Mr. Frederick Smith.
5. Some additional Dytiscidæ, Gyrinidæ, Hydrophilidæ, and Staphylinidæ; by Dr. Sharp.
6. A new species of Helota; by the Rev. H. S. Gorham.

The following memoirs have also appeared in the same volume:—

In Coleoptera:—On the Longicornia of Chontales, Nicaragua (supplementary); by Mr. H. W. Bates. On the Buprestidæ of the Philippine Islands; by Mr. Edward Saunders. On new species of Lucanidæ; by Professor Westwood, Major Sidney Parry, and M. Henri Deyrolle: of Endomycici; by the Rev. H. S. Gorham: of Cetoniidæ; by Professor Westwood: of Pselaphidæ and Scydmenidæ, from Australia and New Zealand; by Dr. Sharp: and of Australian Coleoptera; by Mr. Charles Waterhouse.

In Hymenoptera:—A monograph of the genus *Xylocopa*, by Mr. Frederick Smith; and a revision of the genera *Cleptes*, *Parnopes*, *Anthracia*, *Pyria*, and *Stilbum*, with descriptions of new species, and also of the genus *Chrysis*, from North China and Australia; by the same author.

In Lepidoptera:—Two remarkable memoirs on the habits of *Papilio Merope*, and on its various known forms, by Mr. Mansel Weale and Mr. Roland Trimen; and a third on the peculiar habits and changes in the larva and pupa of *Papilio Nireus*, by Mrs. M. E. Barber. Also descriptions of new genera and species of diurnal Lepidoptera, by Mr. Herbert Druce and by Mr. A. G. Butler; and of others from the Gold Coast (collection Swanzy), by the last-mentioned author: of new species of *Lycænidae*, by Mr. Roland Trimen, Mr. Hewitson, and the Rev. R. P. Murray; and notes on *Mynes Guerini* of Wallace, as well as on Mr. Masters' "Catalogue of the Diurnal Lepidoptera of Australia," by Mr. Miskin.

Four parts of the 'Cistula Entomologica' (8—11) have appeared during the year 1874:—

The *first* containing—A "Monographic List of the Homopterous Insects of the genus *Platypleura*;" by Mr. A. G. Butler. "Diagnostic Characters of undescribed *Cossonidae*" (No. 1); by Mr. Vernon Wollaston. "Descriptions of new African Lepidoptera;" by Mr. A. G. Butler.

The *second*,—"Descriptions of new *Buprestidae*;" by Mr. Edward Saunders. "Descriptions of four new Asiatic Butterflies;" by Mr. A. G. Butler. "Descriptions of new Species of Australian *Cetoniidae*" (with one coloured plate); by Mr. Oliver E. Janson. "Descriptions of new Lepidoptera;" by Mr. A. G. Butler.

The *third*,—"Revision of the Homopterous Genera *Cosmo-scarta* and *Primatostetha*, with descriptions of new Species" (one plate); by Mr. A. G. Butler. "Abstract of Dr. Mayr's Monograph on the Synergi of the Oak-galls;" by the late Francis Walker. "Note on the *Tachinidae*;" by the same author. "Descriptions of new Species of Diurnal Lepidoptera, chiefly from Tropical America;" by Mr. Herbert Druce. "Descriptions of some new Heterocerous Lepidoptera from Australia;" by Mr. A. G. Butler. "Description of a new Species of *Blattaria*;" by the same author.

The *fourth*,—"Notes on Australasian and North American Trichopterygia, with descriptions of four new Species;" by the Rev. A. Matthews. "Descriptions of some Japanese Hymenoptera;" by the late Francis Walker. "Descriptions of Amurland Chalcidæ;" by the same author. "Descriptions of two new Species of Scorpions" (from Uruguay); by Mr. A. G. Butler. "Notice of Dr. Mayr's Essay, 'Die Europäischen Torymiden;'" by the late Francis Walker. "Descriptions of two new Species of Coleoptera, pertaining to the families Cetoniidæ and Buprestidæ;" by Mr. Oliver E. Janson.

Numerous descriptions of insects of various orders are also to be met with in the 'Entomologist's Monthly Magazine,' to some of which I shall hereafter advert.

In occasionally referring to foreign publications, "whose name is legion," I have not considered it requisite to enter further into these, as it would seem to me more desirable to treat of what has been done by British entomologists than to trespass upon your time with other details.

The Rev. Thomas R. R. Stebbing has given figures and descriptions of some "Amphipodous Crustacea;" of a new species of *Arcturus* (*A. damnoniensis*); and of some species of *Amphithoë* and *Sunamphithoë*;—all from the south coast of England;—in the 'Annals of Natural History.'

Professor Wrzesniowski, of the Warsaw University, has also described in these 'Annals' (July, 1874) a new species of the Amphipodous genus *Callisoma* of Costa, from Nice (*C. Branickii*).

Mr. Wood-Mason has communicated to the same publication (September, 1874) the description, given by him in the 'Journal of the Asiatic Society of Bengal,' of a new genus and species of land-crabs (*Hylæocarcinus Humei*), from the Nicobar Islands.

Mr. A. G. Butler has figured and described, in the same part of these 'Annals,' four new species of Myriapod Glomeridæ from Sikkim, lately added to the collection of the British Museum.

A "Systematic List of the Spiders at present known to inhabit Great Britain and Ireland," by the Rev. O. P. Cambridge, has appeared in the Transactions of the Linnean Society (vol. xxx., part 2), in the preamble to which the writer calls attention to the circumstance that, in Dr. Thorell's work, lately completed, 'On the Synonyms of European Spiders,' priority is given to names of

many British spiders, first described by Mr. Blackwall and himself, other than the names they bear in the works of those authors.

Various new species of *Drassides* and of *Erigone* have been figured and described by the same author in the 'Illustrated Proceedings of the Zoological Society;' also some new genera and species from Australia, from Natal, and from Brazil, in the 'Annals of Natural History' (No. 81, September). Among those from Australia is a remarkable species (*Salticus volans*), the abdomen of which is furnished on its upper surface with an epidermis, extending laterally considerably beyond the width of the abdomen, capable of being depressed and folded round the latter, or elevated and expanded to its full extent, after the manner of wings; thus constituting "lateral flaps or appendages," serving "as supporters to sustain the length of their leaps."

M. Eugène Simon compares these flaps to a "parachute," made available in springing from tree to tree (Proc. Ent. Soc. Fr., December 11, 1874).

M. Eugène Simon has also published the first volume of an important faunistic work on 'Les Arachnides de France,' illustrated by three plates. The author proposes to furnish a figure of each genus, with anatomical details of those difficult to determine. This volume contains five families of Araneidea,—the *Epëiridæ*, *Uloboridæ*, *Dictynidæ*, *Enyoidæ*, and *Pholeidæ*. The second volume, to be issued shortly, will comprise the families *Urocteoidæ*, *Agelenidæ*, *Thomisidæ*, and *Sparassidæ*.

Figures and descriptions, by Mr. A. G. Butler, of five new species of harvest-spiders, belonging to the genus *Gonyleptes*, from South America, in the collection of the British Museum, acquired since the publication of his monograph of this genus, have appeared in the 'Journal of the Linnean Society' (No. 58).

The first part of a "Monographic Revision and Synopsis of the Trichoptera of the European Fauna," by Mr. Robert M'Lachlan, has just been issued, containing five plates of elaborate structural details, illustrating the *Phrygancidæ* and portion of the *Limnophilidæ*. The author proposes to extend the geographical limits of his work (with certain exceptions) to those outlying regions of Asia and Africa comprised in the first of Dr. Selater's two great divisions of the temperate and boreal parts of the Northern Hemisphere, under the denomination of "Palearctic" and "Nearctic;" the former comprehending all Europe and its islands, Algeria on

the African border of the Mediterranean, all Northern and Central Asia, Asia Minor, the North of China, Japan, &c.; the latter synonymous with the greater part of North America; while, however, excluding from his own range China and Japan, but including Iceland, as generally considered more European than American.

A singular insect from New Zealand, belonging to the family Ephemeridæ, has been figured and described by Mr. Robert M'Lachlan, in its several conditions of male, female, female sub-imago, nymph and larva, in the 'Linnean Society's Journal' (No. 58), under the name of *Oniscigaster Wakefieldi*, whereof the female alone had been previously recorded by him in the 'Entomologist's Monthly Magazine,' for October, 1873.

We are indebted to Mr. H. W. Bates for a series of papers containing descriptions of new Cicindelidæ and Carabidæ, which have appeared in the last-mentioned Magazine; also for two memoirs on the Geodephagous and Longicorn Coleoptera of New Zealand, in the 'Annals of Natural History;' and to Mr. Frederick Bates, for descriptions of new genera and species of Heteromera, chiefly from New Zealand and New Caledonia, in the same 'Annals.'

We have to thank Mr. Pascoe for a continuation of his "Additions to the Australian Curculionidæ" (Parts VI. and VII.), published in the aforesaid 'Annals;' and for a very extensive fourth part of his "Contributions towards a Knowledge of the Curculionidæ," occupying the whole of the Linnean Society's 'Journal,' No. 57, accompanied by four plates, and a copious systematic list of all the genera and species described in the several parts of these 'Contributions.'

A memoir by Mr. E. C. Reed, "On the Geodephagous Coleoptera of Chili," appears in the first part of the 'Illustrated Proceedings of the Zoological Society' for 1874.

Dr. Sharp has communicated to the 'Entomologist's Monthly Magazine' (October, 1874) the description, by Dr. Leconte, of Philadelphia, of a new genus of aquatic Coleoptera (*Hydroscapha natans*) allied to *Limnebius*, but differing therefrom, and from all other Hydrophilidæ, by the laminate and widely-separated posterior coxæ and peculiar abdomen. This remarkable insect, which Dr. Leconte considers as indicating a new family of the Clavicorn series, was found abundantly by the late Mr. Crotch, in

a river of South California; and another minute species, simultaneously described by Dr. Sharp (*loc. cit.*) under the name of *Hydroscapha Crotchii*, was captured by Mr. Crotch and by himself in some pools near Madrid.

In the same publication we also meet with descriptions of various new exotic Coleoptera, by Mr. C. O. Waterhouse, the Rev. H. S. Gorham, Mr. George Lewis, and Dr. Ritsema; of others from Japan, and of new Cossonidæ from various localities, by Mr. Vernon Wollaston; of a new species of *Cremastocheilus* from California, by Professor Westwood; of two new species of Cetoniidæ, of two new genera and some new species of Pselaphidæ, and of two new genera of Scarabeidæ from Egypt and Arabia, by Dr. Sharp.

"A Revision of the Genera *Epicharis*, *Centris*, *Eulema* and *Euglossa*, belonging to the Family *Apidæ*," by Mr. Frederick Smith, has been published in the 'Annals of Natural History' (Nos. 76—78, 1874).

The Rev. T. A. Marshall has described a new genus and three new species of *Oxyura* from Corsica in the 'Entomologist's Monthly Magazine' (Nos. 117, 118).

Several papers by the late Francis Walker, on the genera of this remarkable tribe, with illustrations, have appeared in the pages of the 'Entomologist.'

M. S. C. Snellen Van Vollenhoven, in the fourth part of his 'Schetsen ten Gebruike bij de Studie der Hymenoptera,' has figured a large number of this group, in four excellent oblong-folio plates, published under the auspices of the Entomological Society of the Netherlands.

Professor Westwood has also figured and described some new genera and many interesting species of the same tribe, in his aforesaid 'Thesaurus' (plates 29 and 30).

The beautifully illustrated works of Mr. Hewitson on 'Exotic Butterflies,' and of Mr. Butler, under the title of 'Lepidoptera Exotica,' have extended, in the former case, to ninety-three parts, and in the latter to twenty, each maintaining that high character for which they have been so justly esteemed. It is, however, to be regretted that, for the reasons set forth in the preface to this first completed volume, Mr. Butler's work will not be continued; the more especially as, independently of its intrinsic merits, the illustrations in chromo-lithography exhibit

the admirable precision and vivid adaptation which this art has now attained.

Mr. W. H. Edwards has commenced a second series of his splendid illustrated work on 'The Butterflies of North America.'

Mr. Hewitson has described, in the 'Annals of Natural History,' several new species of Diurnal Lepidoptera taken on the march to Coomassie by Lieut. Bell, of the 2nd West India Regiment; also a new genus from Madagascar, allied to *Atella*, and some new species from the Andaman Islands; Mr. Atkinson having figured and described two others from the same locality (*Papilio Mayo* and *Euplæa Andamanensis*), in the last part of the 'Illustrated Proceedings of the Zoological Society' for 1873.

In the same part of these 'Proceedings,' Mr. A. G. Butler has given a "Revision of the Genus *Protogonius*," which has long been supposed to consist of one extremely variable species. This he considers highly improbable. He therefore describes all the known forms under the designation of species, while indicating their remarkable resemblance to several of the Heliconoid *Danaidæ*.

In the subsequent parts of these 'Proceedings' (i.—iii., 1874), are descriptions of Siamese Lepidoptera, by Mr. Herbert Druce; of new species from Cashmere, by Mr. Frederick Moore; from the South Sea Islands, by Mr. A. G. Butler; and from Costa Rica, by Messrs. Butler and Druce. Also, in the 'Annals of Natural History,' of three new species of *Sesia* (whereof two from Japan), by Mr. A. G. Butler; and of new genera and species of *Ægeriidæ*, by the same author.

Descriptions of various new species of Diurnal Lepidoptera from the West Coast of Africa and other localities, by Messrs. Hewitson, Druce and Butler, appear in the 'Entomologist's Monthly Magazine; also "Notes on Japanese Butterflies, with Descriptions of new Genera and Species," by the Rev. R. P. Murray.

A "List of the Species of *Fulgora*, with Descriptions of New Forms in the Collection of the British Museum," by Mr. A. G. Butler, appear in the 'Illustrated Proceedings of the Zoological Society' (Part 1, 1874); two species from India being also subsequently described by the same author in the 'Annals of Natural History' (August, 1874).

Several papers on "Hemiptera-Homoptera from Japan," with

descriptions of various new genera and species, by Mr. John Scott, have also appeared in these 'Annals.' Others on British Hemiptera by MM. Douglas and Scott and Mr. E. Saunders, have appeared in the 'Entomologist's Monthly Magazine.'

The Editors of this work have announced their intention of publishing an annual summary of all additions to the British Fauna in the several orders of insects.

A series of papers and diagrams of the structure of the wings in the several genera of Dipterous Insects, by the late Francis Walker (the figures from drawings by Haliday), has appeared in several numbers of the 'Entomologist' during the past year.

An important sequel to the 'Nomenclator Zoologicus' of Agassiz has been compiled by Count Augustus de Marschall, and issued under the patronage of the Zoologico-Botanical Society of Vienna; comprising all the new genera of the Animal Kingdom described from 1846 to 1868, with references to the respective publications.

A new volume of the 'Zoological Record' (vol. ix., 1872) has also been issued during the past year.

In conclusion, I would beg to call attention to the advantages derivable from giving timely notice to our Secretary of papers to be read, or of subjects to be discussed, at successive meetings, the publication of which notices would be likely to prove attractive to many of our members, and enable them to come prepared for the occasion.

The thanks of the meeting were unanimously voted to the President for his Address and for his services during the past year. The President returned thanks.

Thanks were also voted to the other officers for their services during the year. Mr. M'Lachlan returned thanks.

Abstract of the Treasurer's Accounts for 1874.

| Receipts. | | | Payments. | | | | |
|--|-------|----|-----------|--|-------|----|----|
| | £ | s. | d. | | £ | s. | d. |
| Balance brought forward from last account . . . } | 2 | 1 | 3 | Rent, Librarian & Office Expenses } | 56 | 3 | 10 |
| Arrears of Subscriptions paid in 1874 . . . } | 22 | 1 | 0 | Printing 'Transactions' and 'Proceedings' . . } | 162 | 4 | 0 |
| 154 Subscriptions for 1874 } | 161 | 14 | 0 | Plates — Drawing, En- graving and Printing } | 28 | 18 | 9 |
| 13 Admission Fees . . . | 27 | 6 | 0 | Do. Colouring . . . | 31 | 10 | 0 |
| Tea Subscriptions . . . | 16 | 13 | 0 | Books purchased, and Binding } | 4 | 8 | 6 |
| Sale of Publications . . | 62 | 2 | 10 | Tea, 13 Meetings . . . | 13 | 13 | 0 |
| Divid. on £181 18s. 5d. 3-per-Cent. Consols } | 5 | 8 | 7 | Balance in Treasurer's hands } | 0 | 8 | 7 |
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Assets of the Society.

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| Arrears of Subscriptions considered good (say) . . . | 18 | 18 | 0 |
| Cost of £181 18s. 5d. 3-per-Cent. Consols . . . | 167 | 4 | 0 |
| Cash balance in hand | 0 | 8 | 7 |
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MAY 20 1875

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The Arabic Figures refer to the pages of the 'Transactions;' the Roman Numerals to the pages of the 'Proceedings.'

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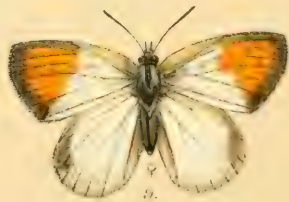
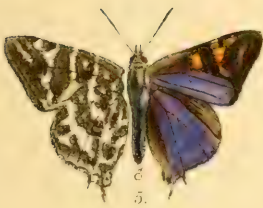
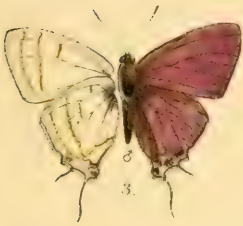
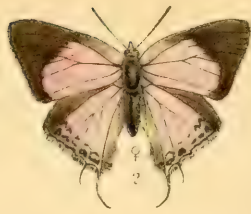
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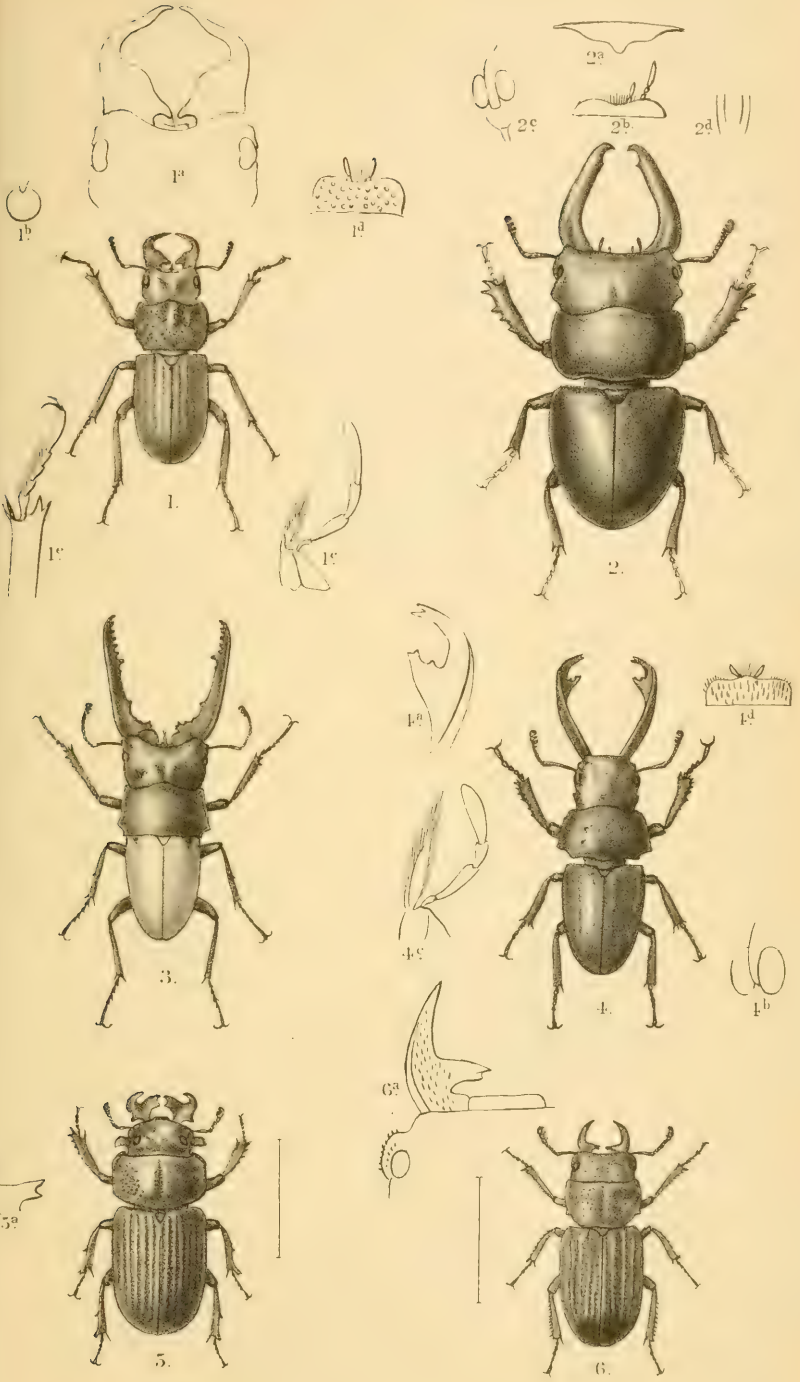
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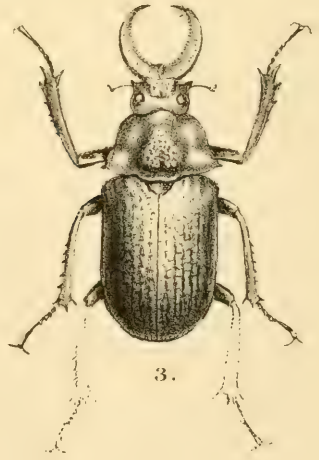
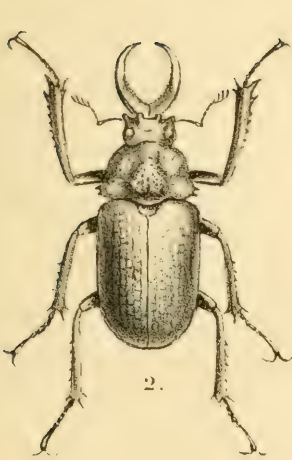
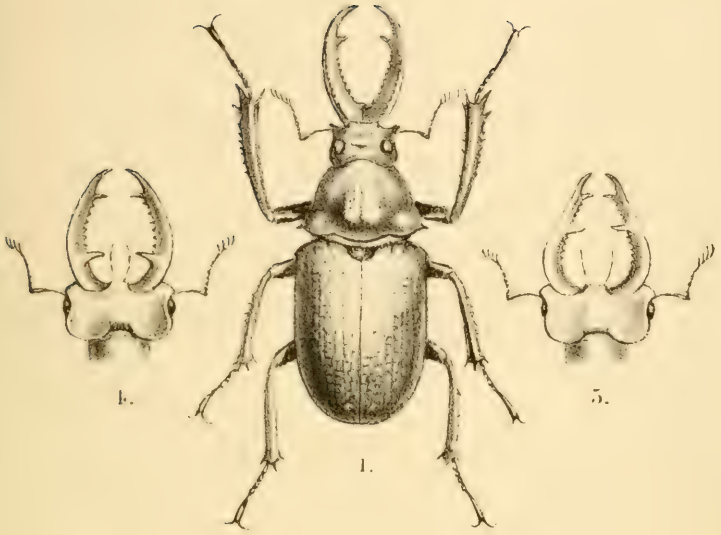
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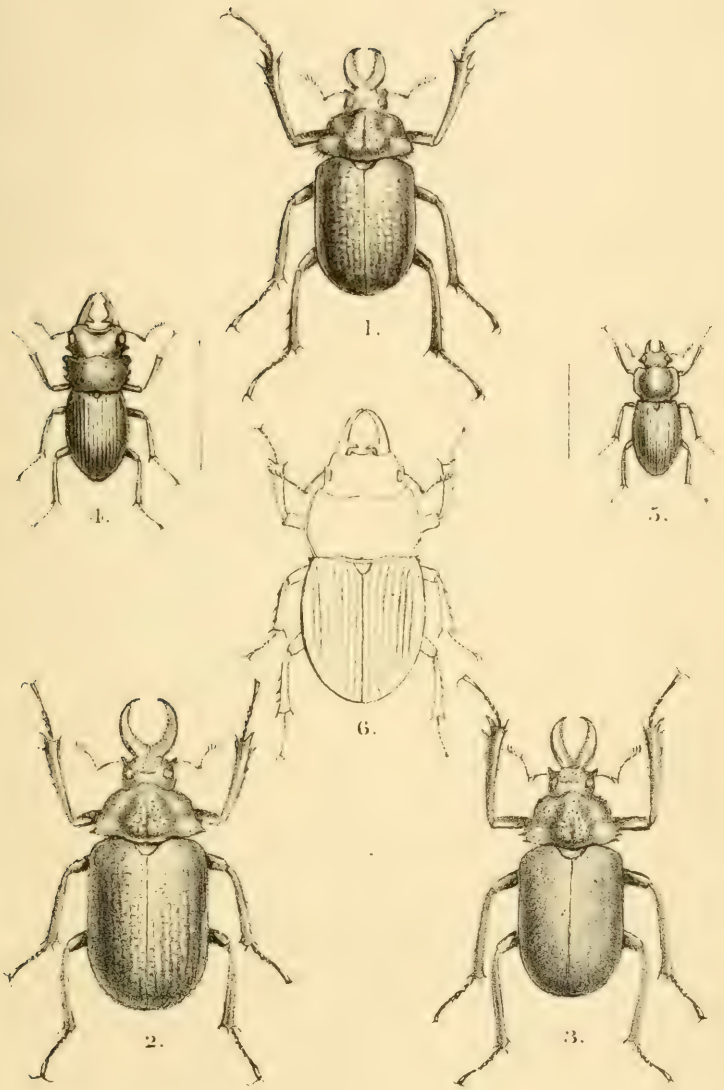
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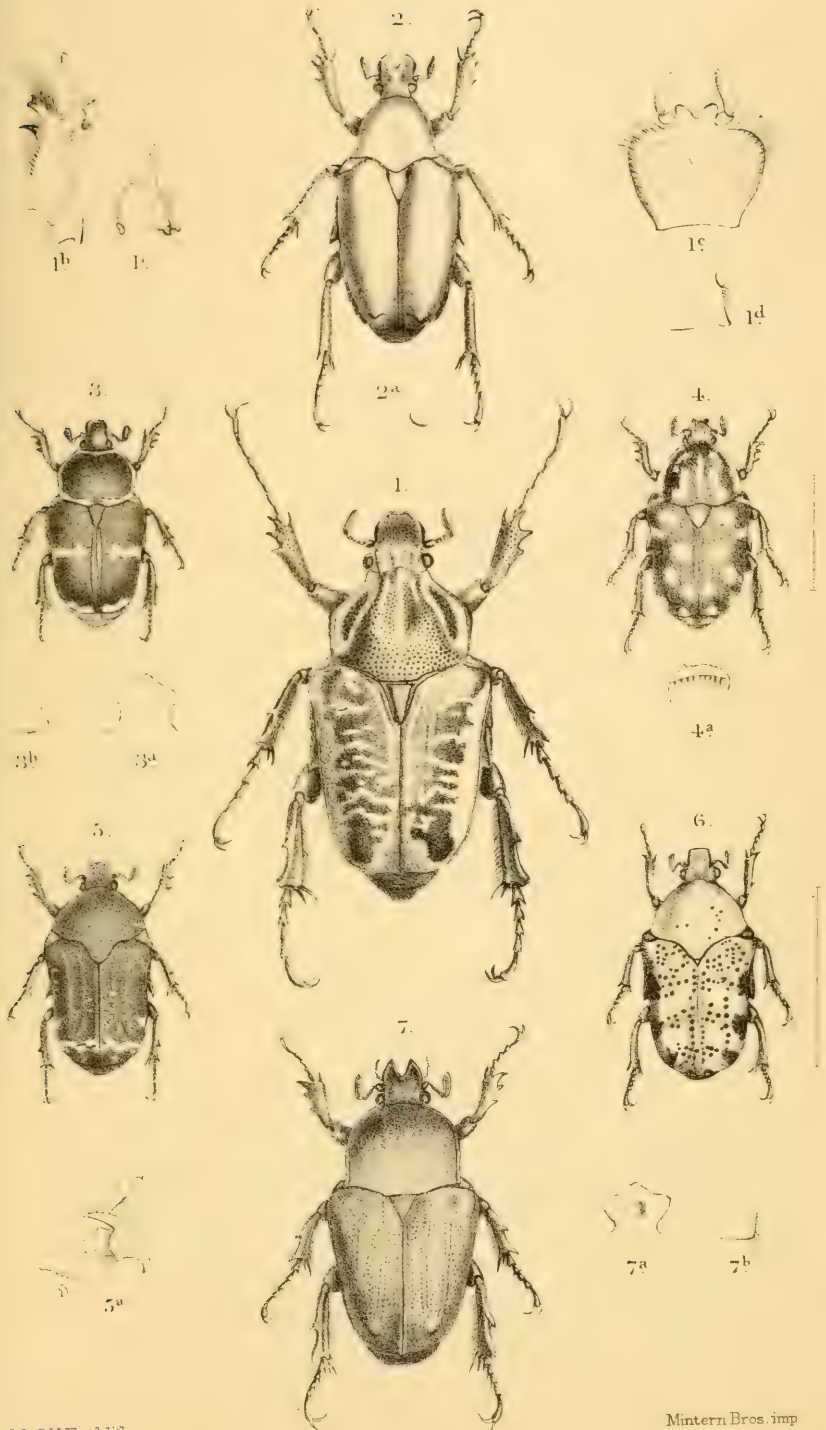












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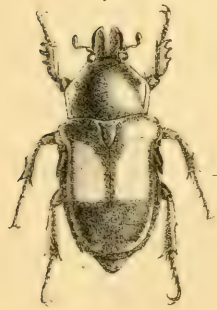


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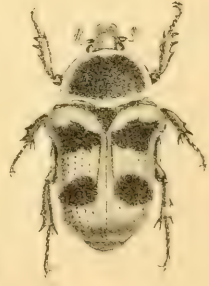


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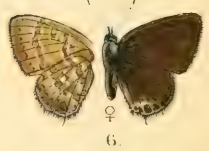
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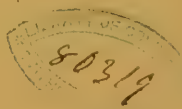
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